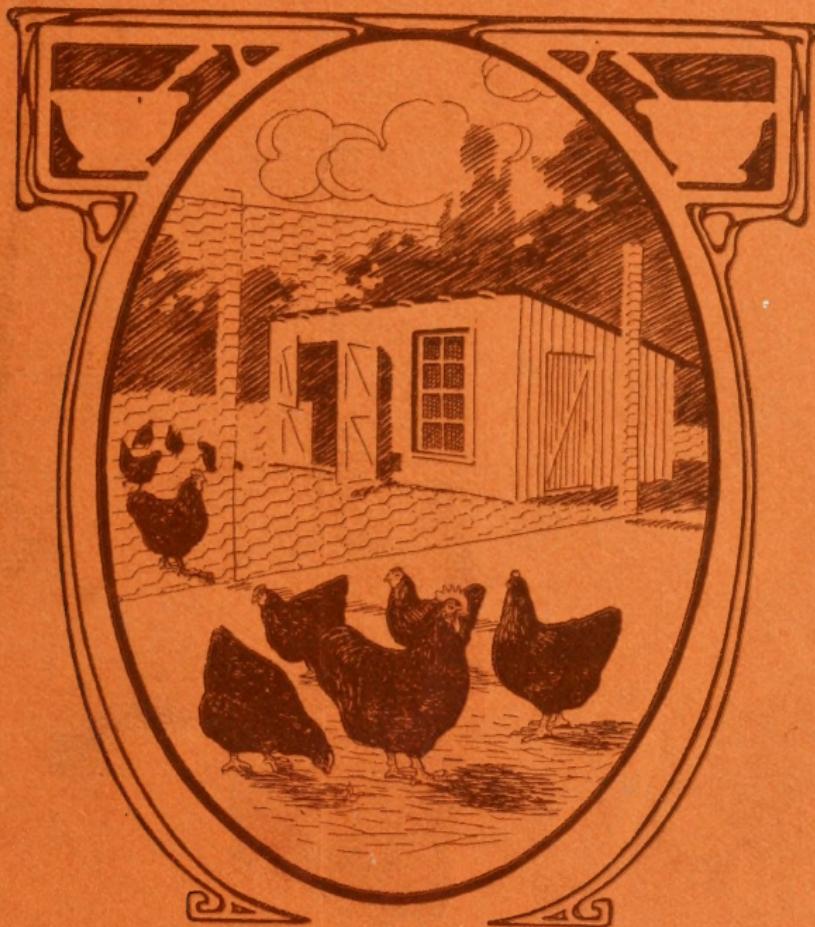


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# SIMPLE POULTRY REMEDIES



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# Simple Poultry Remedies

A Book Which Describes in Simple Language  
the Symptoms of the Leading Diseases  
of Poultry and Tells How They  
May be Cured and Prevented  
by Simple Methods.

By COMPETENT AUTHORITIES

Price 25 Cents

Webb Publishing Company  
St. Paul, Minnesota, 1909.

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# Introduction

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In considering any disease by which poultry is affected it is well to remember that a cause exists and that the flock is not safe from further ravages unless that cause is removed. To continuously doctor members of the flock, even though the treatment seems effective, while the conditions which brought on the disease remain, is neither reasonable nor profitable.

The first thing to do, therefore, when any disease or ailment is discovered in the flock, is to determine the cause and remove it. For example, severe colds may be caused by exposing the fowls to drafts while on the roost, or by too tightly closed houses which afford an insufficient supply of life-giving oxygen for the fowls to breathe. Any number of remedies for colds could be applied, and for a time would prove effective by destroying the cold germs in the systems of the fowls, but if a continuance of the same methods of housing prevails, more sickness is brought on as fast as certain specimens are helped and moreover the constant doctoring tends to weaken the flock and decreases its productiveness for some time to come.

Having removed the cause of the disease the next thing is to kill or cure the ailing specimens. In severe cases where diseases are contagious or infectious, the former method of disposing of them is advisable except, perhaps, in the case of very valuable specimens. In effecting a cure, or attempting to do so, the use of as simple remedies as possible

is advised and in no case should harsh remedies, which are needed only in very severe cases of certain diseases, be applied to troubles of less importance and which may be alleviated by medicines which are less drastic in their action. Although the harsher remedies may cure the ailments, the effect on the birds is never good.

What the poultryman needs to know is how to recognize certain ailments or diseases by their symptoms, what measures to apply to remove the cause and what medicines to give to free the fowl's system from the trouble without overtaxing that system in other directions. To provide this information in the most available form is the object of this book. We have endeavored to make each description plain and simple and to advise the use of such remedies in each case, so far as possible, as may be found in the average household or secured easily at the nearest drug store. Every word of advice that this book contains has been tried and proved in actual experience and we unhesitatingly commend it to the poultry keepers of America.

THE PUBLISHERS.

## FOOD AS A CAUSE OF DISEASE.

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The One-Sided Ration not Alone Destroys the Profit, but Undermines the Health of the Flock.

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By Dr. N. W. Sanborn.

What we feed, and how we feed, makes a difference in the health of our flock. A one-sided ration, irregular meals, manner of supplying grain and mash, mar the best plans made to maintain sturdy stock.

There is not as much disease today from improper feeding as twenty years ago. The old plan was to give a hot, wet mash of cornmeal in the early morning and a full feed of corn just before roosting time. The every-day farmer of fifteen years back paid no attention to the idea that such a ration was "one-sided." He had corn in the barn and cornmeal in the grain room, and little else. He did not spend an hour every frosty morning cutting green bone into poultry food. He thought money wasted if put into bags of meat scraps. The result was very few eggs in the winter months, over-fat hens, and lots of birds to bury in the late winter and early spring months. The all-corn diet led to heavy hens, baggy behind, with livers over-taxed and digestion upset. Eggs would come in moderate numbers in March, but the yield would let up in April.

### A Comparison of Methods.

I once had two neighbors who did not feed alike. One fed the all-corn ration and the other practiced the best feeding he could learn from the papers, and experiment station reports. Under the old plan of feeding, practically no eggs came between the last of October and the middle of February. The other neighbor, who supplied the foods needed to main-

tain life and also produce eggs, averaged an egg a day from every two hens in his flock. The first was feeding at a constant loss—the second saw his profits improving with the coming of continued cold weather. Under the corn diet the birds were out of condition most of the time and many of them were dead before the grass was three inches high. The balanced ration supplied just the needs of body and eggs, did not over-tax digestion, and was not a factor in producing disease.

There is danger also in stimulating fowls for winter egg production. I have known poultrymen who seemed to reason it out that if a little spice was good for the birds, more was better. The result was irritation of egg organs, possibly an enlarged liver, and all the evils that follow trying to get too much. It is well to keep in mind that poultry food needs no more spice than the feed we use on our tables. When you feed a moderate amount of food, well balanced, little more is needed for winter eggs and health.

#### **Results of an Unvaried Ration.**

The leaving out of some needed food may lead to illness. There is danger that in our use of the dry mash, hopper method, we forget the requirements of our birds for green roots and vegetables. Even the absence of "filling" may prove the wrong doing of our hens. Except in the very shortest days of winter the birds will eat too much grain and mash if not allowed access to green food of some sort. The old flock on the farm had a splendid chance to select seed and leaf from barn floor and horse manger, scratch for the waste of the mow, and work the dry leaves that blew in under the timbers of the old shed. Under modern plans we house and yard the birds so closely that they get no more than we give them from day to day.

#### **Different Feed for Different Breeds.**

All breeds cannot be fed the same, and have us sure that results will be the same. The ration that suits the needs

of the Leghorn may lead to disease in the Cochin. The free range flock may stand the full hopper of meat scraps that would prove the undoing of the shut-in flock of the modern house.

Let us apply modern methods in a common sense way that we may see large winter profits. We should not forget, in so doing, that there are dangers from good foods and high priced rations. A little thought, some observation of our birds in their houses, and we may avoid a few of the illnesses due to improper feeds and wrong methods.

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## FILTH CAUSES DISEASE.

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**Bad Air, Impure Food, Drink and Filthy Quarters Produce Sickness and Death.**

---

**By Dr. N. W. Sanborn.**

Causes of disease are more important than cures. A knowledge of prevention is worth more than understanding how to use drugs in the diseases of chicks and fowls. I like the tendency of today to ask why birds are ill, rather than what to do to cure them.

In the long list of causes of disease there is not one that stands out as prominently as filth. It is not until we begin to really dig into the subject that we appreciate this fact. Every poultryman has seen so many successful poultry yards that were far from perfect in health points that the matter of filth has to be thought out in connection with outbreaks of illness. Let me tell you some of the things that will follow in the wake of "dirt"

**Effect of Impure Air.**

Filth may attack the fowl in the air they breathe. Chicks housed in brooders badly ventilated, or crowded into small coops, fall victims to several forms of disease. Whole brood-

er flocks have been lost because the owner sought to save oil by giving little ventilation. Some brooders that supply purity of pure air in the cold days of March and April fail to do so in the mild and warm weather of May and June. The brooder that requires a full flame to warm it in March may prove a death-trap in early summer. The one that is a healthy home for fifty chicks in late winter may fail to do good work in milder days. I know several breeders who can raise the early chicks and fail in the lots that come off in late May. The breathed, and re-breathed, air weakens the chick to the point where disease germs breed easily.

Older stock may suffer from filthy air. The maturing pullet in the crowded roosting coop, or the winter layer in the closed roosting closet, is affected by the absence of pure air. Anything that weakens vitality is a factor in disease and nothing is more sure to bring trouble than the presence of air loaded with filth elements.

Even incubators need to be supplied air that is pure. Allow a leak in the lamp tube, or set the machine in a cellar that is musty, and hatchies are far from satisfactory.

#### **Impure Food and Water.**

The eating of filth in the food is not without danger. Hens and chicks fed a partly fermented mash thrown on the dirty ground often show indications of cholera or dysentery. I do not wish to be understood that all birds that take animal waste with their food become ill as the result of it. On the contrary I wonder that hens keep well with the treatment that so many of them get in this line. I simply wish to impress on you that there are many dangers to the flock that live under conditions far from perfect.

Decayed food is filth. How many cases of limberneck we hear of in the summer days! The dead hen under the barn, the strong smelling dead calf in the pasture and the spoiling woodchuck in the bush, supply filth that poisons chick and hen alike.

Drinking water may have causes of illness in it. Between the heat of the hot weather and the droppings that may get into it we must watch the water fountain lest we supply right conditions for an outbreak of sickness.

Pure water is not hard to supply. Clean surroundings are not out of the question. All out-doors is at hand to draw on for a bountiful quantity of fresh air. Why not use a little thought and time in giving our stock the conditions that are needed to produce and keep sturdy hens and chicks? I have worked out many of these problems on my own plant and know the satisfaction that comes when you can show chicks and hens both profitable and beautiful. Try this plan of mine with your stock the coming twelve months.

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## CAUSES OF SUDDEN DEATHS.

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**Improperly Balanced Rations and Careless Feeding Result in Deaths That are Without Apparent Cause.**

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By Dr. N. W. Sanborn.

Many inquiries come to me seeking light on causes of death in birds that have no continued illness. A hen seems to be well today, and tomorrow is found dead on the nest. A cockerel eats his evening meal at five o'clock and is found stiff on the ground an hour later. These are two illustrations of the cases I desire to discuss.

It hardly seems possible, to one who is not acquainted with poultry, that a hen can die with so short a notice of trouble, but I have had cases in my own flock, as well as had my attention called to many such cases in other yards. Let us see if we can get an understanding of a few of the underlying facts.

The man who owns a dozen hens, in his village yard, receives little impression if he has one hen die on the nest in

the course of a year. Let the same percentage occur in the one thousand hen plant, eighty hens in a single year, and the owner is dismayed. As these sudden deaths in hens are most common in early spring, the loss of eighty birds in a few weeks startles the owner of the egg farm. The loss of the hens is something but the cutting out of the egg product is much more. What is the common cause of these sudden deaths in laying hens?

A badly balanced ration has been the fault. The poultryman of today is good to his fowls. He usually feeds them too large a ration and it is fat making rather than egg producing. The healthy hen needs a growing ration rather than a fattening one. The line of feed that we use to mature the pullets in the fall is the one to feed for egg production in the spring. It is the long continued fattening ration of winter that sets in motion the process that ends in sudden death. When a well matured pullet, or an inactive hen, in winter is obliged to overeat in order to get protein food enough for her daily needs she cannot escape deposits of fat within her body. The average owner of a few hens feeds too much corn and cornmeal, bread and pie-crust, flour and meal. He does not supply the craving for meatscraps, green bone and milk. It is the animal part of the ration that is forgotten. The overfat hen becomes weak in muscle, fat taking the place of fiber, and this is true of the fine muscles of artery and egg duct. The eggs form, start to pass, and in the act of being ejected burst the egg passage or become lodged in the canal. Impaction of egg, or rupture of egg duct, is the usual cause of these dead hens on the nest. A small percentage of the fatalities are due to rupture of a blood vessel during the straining process of laying.

Sudden deaths in male birds is usually due to bolting their food. The cock, or cockerel, is yarded, is hungry, and receives his supper of cracked corn. He fills to the limit, drinks from the water dish, and feels uncomfortable. He

takes more water, the swelling of grain continues, and he goes again and again to the water fountain. Acute indigestion comes on, colic is quickly at work and in a short time the male bird may be still and stiff. I have known a number of cases like this and a few that have followed the heavy feeding of whole oats to a fasting male. A tightly filled crop, a swelling mass of grain, and no wonder we lose now and then a valuable bird. I had a dead cockerel sent to me for examination and advice. I found his gizzard impacted with whole oats, the passage between the gizzard and crop swollen to bursting, and the crop itself full of tightly massed oats. Certainly it was a case of "stoppage!"

These few cases of disease point a lesson to us all. We need to know more of feeds and ways of feeding, and use our knowledge to avoid illness in our flock. If we would give the time to learning the best methods of feeding and care, that we do to doctoring ill birds, we would save money and failure.

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### SUNSTROKE.

Overheating or sunstroke occurs but rarely and then almost always in the case of very fat fowls. The birds seem to be partly paralyzed, often lying on their sides for considerable time. They eat well and retain a red color in face and comb. If kept in a cool place and fed moderately, with plain, but wholesome food, sometimes they will recover.

Young ducks are frequently affected by the heat and will become almost perfectly rigid and apparently lifeless. If placed in a cool, airy location and their heads bathed with cool water, most of them can be saved if they are attended to immediately.

## DISEASES TAKEN AT SHOWS.

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The Dangers That Threaten The Exhibition Bird and How They May Be Lessened or Prevented.

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By Dr. N. W. Sanborn.

Exhibitors at the winter shows seldom pass a season without more or less illness in their string of birds. Last winter was the first time that I ever escaped some illness in my show birds. The matter is one of importance to exhibitor and show management and must be better understood by all.

There are the diseases incident to the trip from yard to show. The man who takes his stock in his own wagon from home to show, seldom has serious trouble from the exposure to cold, wet and wind. Especially does he escape the dangers of having his birds smothered in the express car or injured for life because of being tightly packed in the cars. I know few breeders who have not either lost some stock, or had some injured, from the close air of the car. Then there is danger of contracting catarrh, roup, bronchitis or pneumonia, from the drafts that the coops are subjected to on trucks or platforms at junction points. Cocks are especially liable to nervous shock in the confusion of the trip, going rapidly to the bad when back in the home plant.

In the show room the birds are often in dark corners, the temperature is far higher than in the poultry house, they are fed a new ration, and subject to the annoyances of many passing visitors.

To take a show bird from near the steam pipe of the express car, carry it a mile on an express wagon in zero weather and coop it in a public hall under artificial conditions, is trying to the best fowl that any of us own. No

wonder that our best show bird sometimes dies before the opening of spring.

#### Diseases Caught at Shows.

Then in the show there is danger of disease being taken from other ill birds. Show managers are lax in allowing birds plainly ill to remain in the pens long after complaint has been entered. More shows are coming to the practice of excluding ill stock from the exhibition.

Roup, canker and chicken pox are the three diseases most often spread through the shows. Roup and canker are the winter diseases that are to be most feared. Chicken pox is more often seen in the fall fairs or breaks out in show stock a week after they return home. Chicken pox was almost unknown in the Northern states ten years ago, but is now being reported in nearly every state.

Long used exhibition coops may hold germs of roup and catarrh over a whole year, passing on the disease to new birds when the right conditions are supplied. Unwashed water cups may be sources of disease as well as the wood and metal of the coop.

#### Preventive Measures.

What can be done to prevent these illnesses? Better shipping coops should be used. They ought to be made so that it is impossible to fit them so closely together as to shut off air from the stock inside. At the same time the birds need protection from high winds and zero air. Too small, or low, coops should be abandoned. Ill stock must be held at home, even though they seem to be all right to ship. Better have an empty coop at the show than infect another's birds.

More attention is needed in the cleaning and disinfecting of showroom property. Every feed and water dish should be boiled and washed before storing away at the end of the show. It should be someone's business to see that ill birds

are removed from the coops when in the show, or detected and returned to the owner.

The matter of disease in poultry is attracting attention and anything we can do to prevent sickness will increase public interest in well-bred fowls. If the winter show can reduce the number of cases of illness, that late seasons have seen, more men will enter the race for honors in poultry competitions.

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## SOME COMMON REMEDIES.

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**Simple, Effective Poultry Medicines and the Diseases Which They are Used to Treat.**

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By Dr. N. W. Sanborn.

Every poultry keeper needs a few simple remedies and to be ready to use them at the beginning of illness. To combat disease without a stock of drugs is like doing carpenter's work without tools. There are a half dozen simple remedies that should be found at hand when disease is first noticed. It will not do to wait until you need medicine and then try to buy it, five miles or a hundred miles away. To delay in the handling of sickness in our flock is to be beaten at the very start.

### Kerosene an Effective Remedy.

Kerosene oil has more uses in poultry disease work than is realized by the average owner of hens. It is a germ killer of merit, a stimulant, and makes housekeeping of the red-mites a terror. Kerosene in small quantities is the best treatment for catarrhs of nostrils and throat, as well as for destroying contagion through the mucous discharges. Kerosene will blister if used too long or too strong, taking off the outer layer of skin and some of the feathers. I use kerosene

on the drinking water, as a usual thing, or in severe cases by injection into the nostrils or throat.

One teaspoonful of common kerosene gently poured on the top of a dish of water, eight inches across, is dose enough for simple cases of fall colds or mild roup. Every time the bird drinks it gets a little oil into nostrils and throat and a taste into the crop with the swallow of drink. It gets its medicine every time it visits the water fountain. It is necessary to have an open fountain so the hen is obliged to take from the highest point.

Kerosene, in larger quantity, on the surface of a pail of water, will be found useful in killing the scale insect that is so common on the shanks of hens. Hold the hen by neck, wings and legs, and drop through the layer of oil every part of the infected shanks. A little oil will penetrate the scales, while the water layer will stop the blistering, the action of the oil. A few treatments will kill off the last insect and the shanks will regain part of their original good looks. Kerosene used on roosts and dropping boards will disturb the workings of the red mite.

#### Arsenite of Antimony.

Arsenite of antimony is a remedy too little known. It is the best internal drug in the cure of bronchitis and catarrhs of all natures. It is not to be found in many drug stores, as it seems to be in no demand for any other purpose than the one I mention. The dose is very small. One two-hundredth of a grain, in solution, is enough for one dose for a hen of five pounds. Four such doses in a day is quantity sufficient for treatment of bronchitis or colds of most natures. One grain of the arsenite added to the day's drink of one hundred and twenty-five fowls will do all that a larger dose would do.

#### Peroxide of Hydrogen.

Hydrogen peroxide is our best outside medicine for pus or matter. For the sores of chicken pox, bumble foot, boils

and infected wounds, this peroxide destroys the germs that are multiplying so rapidly. It has little action on sound tissue and can be used without much danger of setting up additional inflammation. If pus is present, there will be a foaming of peroxide and matter.

#### **Calcium Sulphide.**

Calcium sulphide is worth using in cases of chicken pox, "sore head," or vent gleet. It works through the blood and stops germ growth wherever the blood flows. One grain of the yellow, strong-smelling drug is mixed with the wet mash for each ill bird for a single meal. Ordinary cases of illness require three such doses a day. It is perfectly safe to use, should be real strong smelling to be of use, and must be pushed for results. I believe it to be the only real serviceable drug to use in the treatment of chicken pox. If given to chicks of any age I would use a half grain two to three times a day.

Zenoleum, napereol, sulpho-naphthol, or one of the many tar preparations, added to water till it is milky in looks, makes a splendid application to raw surfaces, for washing out sores, for cleansing nostrils or eyelids.

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#### **DROPSY.**

This disease usually manifests itself in the abdomen, where water collects between the tissues. It usually follows incorrect feeding or filthy surroundings. If much water collects, it is well to puncture the skin with a disinfected needle, being careful not to injure the intestines, and let the fluid escape. Better feed and more healthful surroundings and careful care prevent a recurrence of the trouble. A simple tonic, such as a teaspoonful of nux vomica to each two quarts of drinking water, is useful. Since birds that have dropsy usually have some other disease, of which the dropsy is a manifestation, it is not advisable to breed from them.

## DISEASES OF THE HEAD.

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Some of the Ailments That are First Seen on the Head and Its Adjuncts—The Symptoms and Treatment.

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The head and its adjuncts, especially the comb, are the places where many of the common diseases of poultry first manifest themselves and although sometimes such diseases have gained some headway before they become apparent, usually if the condition of these parts is noted carefully the disease may be known in time to effect a cure.

### Catarrhal Colds.

Catarrhal colds have similar symptoms to the ordinary common colds but the addition of catarrhal affection makes them chronic. There is continuous running at the nostrils and sometimes an odor on the breath. Occasionally in severe cases there is a slight rattling in the throat through the failure of the nostrils to discharge the matter, which then runs into the throat.

One of the best remedies is plenty of fresh air at all times, especially when they are on the roosts at night and especially if they are protected from drafts by cloth or burlap curtains. Half a teaspoonful of creolin may be mixed in half a pint of water and the bird's head thrust into the liquid three or four times with its beak held open with the finger. Usually the pure air treatment is sufficient, and in most cases lack of pure air from roosting in close coops is responsible for the trouble.

### Influenza.

This trouble has much the same symptoms as a severe cold. The nostrils discharge constantly and the birds breathe heavily. Often the heads swell somewhat but there is not

the offensive odor which accompanies roup, which has much the same symptoms so far as the swelling and heavy breathing are concerned. In some cases the eyes are affected, the lids being swollen until they appear to be almost out of place. The fowls droop, often resting with the points of their beaks on the ground. It is usually caused by exposure to sudden changes of temperature or to inclement weather.

A good remedy is tincture ofaconite, 10 drops; tincture of bryonia, 10 drops; tincture of spongia, 10 drops; alcohol, about a fluid ounce. After mixing thoroughly, add half a teaspoonful to each quart of drinking water, allowing the birds no other drink.

#### **Swollen Heads.**

Sometimes that part of the face just back of the nostrils will begin to swell and continue until it is so large that it almost, if not quite, closes the eyes, the swelling being of a yellowish white color. This does not affect the general health of the fowl apparently, but is unsightly and is liable to cause further trouble unless removed.

The affected birds should be confined by themselves in a clean, dry place and fed a fair ration of wholesome food. The face should be bathed twice daily with a weak solution of hydrogen dioxide, composed of three per cent dioxide, one part; water, two parts. After this has dried, apply a little iodoform ointment under the lids of the eyes and in the nostrils.

#### **White Comb.**

This disease is usually caused by a dibilitated condition of the fowls, arising from crowded, damp or badly-ventilated houses, improper feeding, insufficient supply of grit, lack of vegetable food, etc. The comb and head become white and scales form. If these scales are pulled off the surface is likely to bleed. It does not seem to affect the fowls otherwise.

The poultry house should be cleaned and whitewashed and made free from dampness and well ventilated. Feed

plenty of clean, wholesome food and give plenty of green food. It is a good plan to work cocoanut oil into the comb and head and to put a few drops of chloride of iron in the drinking water.

#### **Apoplexy.**

Sometimes a fowl is found which loses control of its muscles from no apparent cause. Its head and neck sometimes twist to one side or backward and sometimes it is unable to walk. Such cases are usually caused by the rupturing of a blood vessel, the walls having been weakened by an over-fat condition of the fowl. Sometimes this occurs when the bird is not externally fat but when internal fat interferes with the proper work of the nerves and circulation of the blood.

Less food and more exercise will prevent other members of the flock becoming affected.

#### **Frozen Combs and Wattles.**

If a bird is found with its comb or wattles, or either, frozen, while the frost is still in, it should be removed by rubbing gently in snow or cold water. Carbolic vaseline or glycerine may then be applied and the comb will be apparently as good as ever in a few days but will be frozen much more easily thereafter. If found after the frost has left the comb or wattle, saving the member is a more difficult matter. The best thing to do is to bathe the comb with witch hazel to encourage circulation of the blood in it and then use carbolic salve or vaseline twice a day, keeping the bird in a fairly warm, dry place. If so severely frozen that the blood does not circulate and the entire member turns dark, it is best to cut it off entirely in the manner that game cocks are "dubbed."

#### **The Pip.**

Pip is not a disease but is a condition brought about by fever in the chick, which is in turn caused by bad digestion or some disease which dries the throat and mouth, or by ir-

ritating dust. This causes the membrane on the tongue to become hard, forming a shell over the end of the tongue. This should not be removed for its object is to protect the tongue. It may be moistened with glycerine frequently and if that does not prove satisfactory a solution of boric acid, 15 grains, and water an ounce, should be used to wash out the mouth and allay the inflammation.

#### **Inflammation of the Mouth.**

This trouble is caused by irritation of the lining membrane of the mouth either from the secretion of an irritating fluid within, or dust or some poisonous substance from without. The mouth usually contains much slimy matter and sometimes a white membrane forms under and around the tongue.

The poultry house should be cleaned and disinfected and well ventilated always. A variety of food should be fed and the affected fowls' mouths should be washed out twice daily with equal parts of glycerine and water or some such mixture. Freedom from dust is particularly desirable.

#### **Eye Troubles.**

Troubles with the eyes seldom exist by themselves but are usually caused by diseases which affect the fowl elsewhere. Inflammation of the throat and nostrils frequently extends to the eyes and canker, roup and severe colds affect them. The cure of the main trouble removes the difficulty from the eyes. Sometimes it is well to bathe them with a mixture of three parts water and one part witch hazel. When this is dry mix one part of powdered iodoform with twenty times its bulk of vaseline and apply the mixture under the lids of the eyes.

#### **Black Comb.**

Sometimes a bird's comb will become dark, beginning usually with the points and turning from a purple to blue and then to black. As a usual thing this is the result of liver

trouble or some other internal disturbance and is caused in the comb by the breaking down of the tissue, which cuts off the circulation.

The proper treatment is to improve the general health of the fowl and apply carbolic salve to the comb. Give green food in the form of cabbage or onions and add a teaspoonful of muriate of ammonia to each quart of drinking water to act upon the liver.

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## COMMON COLDS.

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Symptoms, Causes, Preventives and Cures of One of the Most Prevalent Ailments of Domestic Poultry.

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By O. H. Olson, M. D.

Common cold or Coryza is a very prevalent disease during fall and winter among poultry and consists of an acute inflammation of the lining membrane of the nasal passages. The membrane, as a result of the inflammatory changes, becomes red and thickened, and begins to exude a watery or glairy discharge, which is the product of the inflammation. On account of these changes that take place and the increased secretion, the breathing through the nostrils becomes very difficult, so that the fowl often gasps for breath. There is frequent sneezing, the bird usually stands instead of sitting on the perch. It becomes listless, seems to feel cold and is all huddled up. The appetite becomes poor. The eyes are watery and injected and there is a running from the nose.

Very frequent exciting causes of this ailment are exposure to sudden changes of temperature, overcrowding in warm, poorly ventilated quarters, also draughts that strike the fowls while on their roosts, coming through cracks and crevices and open windows in the hen house. The accumu-

lation of filth and droppings may also act as an exciting cause through irritation. Dampness may also be a cause.

#### **How Colds May be Prevented.**

This disease, as well as many other diseases of poultry, may be prevented by taking proper precautions. In the fall of the year the poultry houses should be gone over and given a good cleaning. There should be a thorough fumigation with formaldehyde candles, now commonly used for this purpose, and while this is done the doors and windows and all openings and cracks should be closed. Then the walls should be sprayed with coal oil and whitewashed, and in the whitewash should be mixed some crude carbolic acid. All cracks and crevices must be closed up so that no draughts can strike the fowls. The houses should be properly ventilated and in such a manner that there will be no draughts. All filth around the poultry houses should be carted away. During the fall and winter in particular the houses must be cleaned often. The dropping boards should be cleaned every day regularly and dusted with sand or earth. Give the fowls plenty of room, for crowding is detrimental to their well-being. Feed regularly and in the proper amount.

#### **Some Simple Remedies.**

In the treatment of this disease there is probably nothing that acts so satisfactorily as giving a good physic, for which give a small dose of common Epsom Salts or castor oil. Then give aconite and belladonna, one teaspoonful of each in a glass of water; dose half a spoonful every two or three hours. Also give quinine, one grain three times daily. Two or three quarts of hot water is placed in a vessel and four or five teaspoonfuls either of spirits of camphor or compound tincture of benzoin is added. Place the vessel near the fowls while they are on their roosts at night and let them inhale the vapor. Menthol is very useful from its power to contract the fine blood vessels and thus relieve the fullness in the throat and enable the bird to breathe better. It is best used

in combination with Eucalyptol, as follows : Menthol, grains 8, Eucalyptol, minims 6 to 8; Liquid Petrolatum, 2 ounces. Apply this with a swab several times daily in the nasal cavity.

## PREVENTION AND CURE OF ROUP.

### How to Recognize, Ward-off and Cure This Destructive Disease of Fowls.

By O. H. Olson, M. D.

Roup is a very common disease of poultry and usually occurs in the fall and winter months. It is at times disastrous, making havoc in whole flocks of poultry in a short time. Every year a large number of fowls die from this much dreaded disease, and, therefore, we should do everything possible to prevent its appearance among our birds. We should always bear in mind that it is a great deal easier to prevent a disease, than it is to cure it, and it is chiefly through neglect and poor management that so many diseases break out.

It should be the first aim to breed our birds in such a manner that they will be full of life and vigor so that they may be better able to resist disease, and in order to do this we must breed from strong, healthy birds, and be careful not to inbreed too closely, which will surely have a tendency to produce a weakened progeny that will become a prey to disease.

#### Causes of the Disease.

Roup is caused usually by overcrowding, dampness and a filthy condition of the houses, yards and run. The crowding together of many birds in small coops, where the droppings are allowed to accumulate until the air becomes foul is a very frequent cause of this disease. Fowls neglected and weakened by lice and mites causing a weak constitution

are easy prey to this disease. Drafts in poorly constructed houses, from broken windows, and drafts striking fowls while on the roosts are other causes.

In order to prevent this disease the poultry houses should be put in good condition before cold weather sets in. Fumigate thoroughly, whitewash inside and keep houses, yards and runs clean. Ventilate properly so as to prevent dampness, and be careful that drafts don't strike the fowls. Feed correctly and keep the birds busy.

#### The Symptoms of Roup.

The symptoms of roup are first those of a cold. There is a watery discharge from the nostrils and eyes. This thickens and fills up the nasal cavity and throat, causing difficult breathing and a rattling in the throat. The head begins to swell and the eyes close up and bulge out. There is a very offensive odor from the roupy fowl which is very characteristic of the disease. It is highly contagious, by contact with the exudations of the sick birds and also by diffusion in the air.

#### The Proper Treatment.

In the first stage give aconite and belladonna and quinine same as given for cold in the head. Then use a powder composed of equal parts of alum, magnesia and sulphur, and give a pinch of the powder to each fowl; repeat several times if necessary. Give castor oil to the sick fowls two nights in succession. Feed soft foods or bran and corn meal with a very little red pepper and charcoal. Use ten drops of the following prescription twice daily: Chlorate of Potash 1 drachm, Chloride of Iron 1 drachm and Boric Acid 1 drachm in six ounces of water. Swab the throat and nasal cavity occasionally with peroxide of hydrogen. Pour a gill of turpentine and a gill of carbolic acid over a peck of lime and after it has become slacked scatter it freely over the inside of the houses. All sick birds should be isolated and kept warm and dry. Fumigate with formaldehyde or by burning sulphur.

## PREVENTION OF COLDS AND ROUP.

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Fresh Air Prevents These Diseases and Tightly Closed Quarters Invite and Foster Them.

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By Victor D. Caneday.

At one time we met a gentleman who had embarked in the poultry business and upon inquiry how his fowls were doing, he began saying some very hard things about the White Plymouth Rocks, which he breeds. Among other things, he said, "They haven't sense enough to go in when it rains. Why, they have nearly all of them got colds and I expect they will be down sick with roup before long." We asked him if he was keeping his poultry house closed at night, and he said, "Yes, the doors and windows are all closed tight, and I have a nice, warm chicken house for them, too." We told him at once, that that was exactly what had caused the trouble, and that we had not at that time (Oct. 10th) put the windows in our poultry houses yet, and the chickens were running out and in as they chose, rain or no rain, and we had had no trouble whatever from colds. Turkeys are more susceptible to colds than chickens are, and yet no turkey raiser but what knows that they will thrive and be healthy roosting out in all kinds of weather. Our friend said: "I believe you are right for I have some common chickens which are roosting out in the trees and they are all doing well."

The above is a fair sample of the way thoroughbred fowls are treated by the amateur, and the bad results are very often claimed to be the fault of the breed rather than the breeder. In housing stock of any kind we have learned that it is not the extreme cold which causes colds, roup, etc., but rather the sudden changes and keeping stock too

closely housed in mild weather. Anyone knows that if they are accustomed to having a window open in their sleeping apartment and then close the room up tight for one night, that they will get up the next morning with a cold, or at best, with a very disagreeable feeling about their heads. We have often said and, we believe it to be a fact, that nine out of ten cases of colds among people are contracted while the individual is in a close, warm room. When the pores of the body are open, then look out for a cold. From our experience with chickens we consider it safe to apply the same reasoning to their care.

We make a practice of keeping the windows open in our poultry houses until the temperature is low enough to endanger the combs, and we find we have healthier fowls and obtain better results in winter egg production than by any other method. One winter we left a pen, containing some of our early pullets, wide open, as in summer time, until the thermometer was below zero. Some of them froze their combs, but none of them had a sign of a cold, and they continued to lay right along through the winter, even those with frosted combs. Of course, they were fed heavy or could not have stood it, but the experiment proved conclusively to us two things—it is not a cold temperature that causes fowls to contract colds, and a frozen comb is not sufficient of itself to check the egg production.

In housing stock for the winter we like the males by themselves and the females by themselves, thus enabling us to give the laying stock abundance of fresh air, their combs being smaller and less liable to injury by frost than the combs of the males. We regularly open the windows of the laying pens during the winter days as soon as the thermometer registers as high as ten above zero, if it is clear and not very windy. We hope no one will undertake to handle the large combed varieties in this manner, as, of course, they would not be expected to withstand the cold that the breeds would which have smaller combs.

Dampness in poultry houses in winter is a fruitful source of colds and roup and is largely caused by neglecting to open up the houses and thoroughly air them out.

Avoid exposure to sudden changes of temperature and always provide them with an abundance of pure, fresh air and there need be little fear of roup getting a foothold among the biddies this winter.

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## ROUP—A FILTH DISEASE.

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**Special Causes of this Disagreeable Disease—Effective Remedies—Means for its Prevention.**

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By Dr. N. W. Sanborn.

Roup is a disease that is common in our flocks. It seems to appear usually in the fall of the year, and among the maturing cockerels and pullets. Seldom does the outbreak occur in summer and it is rare to meet roup before the middle of October.

Catarrh—indicated by slight running at the nostrils—may attack the birds at any age, but roup is seldom seen until the wet days of autumn. I have seen outbreaks of roup that would have remained cases of catarrh had it not been for close air and damp coops.

Birds that roost in the trees through the summer and autumn seldom show symptoms of catarrh and roup. It is when they are closely housed, especially when obliged to roost over un-removed droppings, that the usual outbreak of the fall season comes to them.

The open front, cloth curtain, house has done much to eliminate roup and kindred diseases. The giving up of the old stuffy chicken coop and the use of the wire front roosting coop has prevented much illness along this line.

Flocks housed in dry, well-aired, clean coops and buildings escape roup unless the disease is caught from other

cases. Seldom do serious diseases originate under the conditions I have outlined.

#### The Principal Symptoms.

Roup is well known by swelled heads, closed eyes, bad smelling discharge from nostrils. If you have ever entered a house that held through a night a dozen rousy birds you will never forget the smell that makes a prominent symptom of roup.

While all cases of running at the nostrils are not roup, it is well to bear in mind the danger of such cases running in the more severe disease. At the first sign of catarrh, supply health conditions that are right. Better still, understand and practice prevention of disease.

Suppose you have been having roup in your flock every fall the past few years! Unless you have cleaned up and disinfected as never before you will not escape trouble this fall, no matter how careful you may be in care and feeding. The old infected earth of the house must be removed and new filled in. The walls, roosts, droppings-boards, everything that can have disease germs on it, need a thick coat of carbolated whitewash. This is made by adding one ounce of carbolic acid to every four gallons of the lime wash. The wash should be applied to all wood work and the spatters on the floor will not be wasted.

#### Effective Treatment.

Cases of roup generally improve with the cleaning up of the house, opening up of doors and windows, and less crowding on floors and roosts. Cases may be hurried toward recovery by the use of some antiseptic "dip," or a good "cure" dissolved in the drinking water. Personally I have depended for over fifteen years on kerosene oil. This is old fashioned, simple, yet effective. If kerosene is used carelessly it may produce trouble but this is true of most of the medicines and drugs in every day use. Every case of roup should be housed apart from well fowls. Each sick bird

should have two or three "dips," a day apart, in kerosene. Add one tablespoonful kerosene oil to a pail nearly full of water. Hold the sick bird with both hands, slowly plunge the head through the film of oil that rests on the water, taking the time necessary to count one, two, three and then remove to a dry house. Repeat this the next day. Place a few drops of the oil in every drinking fountain on the plant. Between the effect of the "dip" and that of the medicated drinking water you should get results that will please you. Do not neglect the better care—clean houses, dry, pure air in abundance—in your treatment of roup. Medicine alone will do little to cure disease if health requirements are forgotten.

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## CANKER.

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### One of the Most Frequent Diseases—Its Cause and Treatment.

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Canker is a disease of the mucous membrane usually caused by mold spores. These spores attack the mucous membrane causing yellowish ulcers or accumulations of hard cheesy growths. It may be prevented by carefully inspecting all birds before they are placed in the poultry house, making sure to use none that are affected with canker. Use only clean, sweet litter material and change it frequently. Never use moldy, musty litter or moldy and musty grain, and never allow mold or mustiness to develop in the poultry house during damp weather. Keep the litter material well stirred up and if it shows any sign of being musty rake it all out and burn it, then thoroughly clean up the poultry house, using a good disinfectant freely. One of the best disinfectants for this purpose is a mixture of one fluid ounce of pure creolin in a gallon of water. There are a number of these molds which seem to be of a parasitic nature, and some

of them result in very serious, even fatal, disease, therefore, you cannot be too careful. After thoroughly cleaning up the quarters, place the affected birds in a clean, dry coop and apply a little full strength creolin to the canker spots with a cotton swab made by twisting a bit of absorbent cotton about a sharp stick and dipping it in the remedy. This should be pressed firmly against the sore and slowly and gently moved over it. Sometimes two or three applications a day apart are necessary before healing begins to take place. If the above remedy does not prove effective, use aromatic sulphuric acid in the same manner. This can be procured of any druggist, only be sure to ask for aromatic sulphuric acid which is a special preparation.

If the bird is only slightly affected, makes a good recovery with no tendency to recurrence of the trouble, there is no reason why it should not be bred from. Any birds that have been seriously affected had best be marketed after they are cured, as one serious attack is liable to be followed by others.

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## THE “RATTLES.”

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Rattling in the Throat is Not a Disease, But a Symptom of Disease.

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By Dr. N. W. Sanborn.

I do not like to head my article with this wording, but do so to attract attention of poultrymen who use it in every day life. I have lately had several requests to be told what “rattles” was, and what to do to cure it. The disease that has rattling for the prominent symptom certainly needs thoughtful consideration.

Rattling in breathing is not uncommon in chicks and old fowl, in heat of summer and cold of winter. It is found in

poultry yards in bleak old New England and sunny Florida. I have listened to it in Maryland, and have been told of its ravages in California.

#### The Cause of "Rattles."

Rattling in breathing is due to too much mucus in the throat, windpipe or bronchial tubes. Anything that irritates the lining of breathing tubes increases the mucous flow and produces an obstructed breath. Bronchitis, cancer, and other acute diseases may have this very common symptom that we are considering. The use of airslaked lime in the treatment of gapes may give a lot of cases of rattles. The constant breathing of dry dust, especially if it be gritty and alkaline, is responsible for some of the cases that have been reported to me lately.

I have just had a serious case of this sort to investigate and will use it to illustrate my article. A valuable cockerel was sent by express to a buyer two hundred miles away. The shipper did not for a moment think that the bird was anything but well. It arrived at its destination, and was very much liked by the new owner. As was usual with him, he looked the bird carefully over and then gave it a small pen all alone. The cockerel was splendidly healthy, active and with red comb and wattles. His appetite was good, crop all right and bowel discharge normal. There were two things that were noticed, and but little anxious thought was brought on because of them. First, there was dust stuck all round the opening in the nostrils, and, second, there was a slight odor to the breath that was suggestive of roup. As routine practice this bird was kept along for two weeks and, continuing well, was mated to ten hens and pullets. Three days later the bird showed signs of illness, and was rattling badly. He was hungry, but had difficulty in swallowing food. Examination showed a dusky color to throat, a coating of sticky mucus, and rattling in the windpipe. The throat was swabbed out with a solution of sulphate of copper and a slight film of kerosene oil added to the drinking water.

The cockerel was given a pen to himself. In four days the rattling was gone, the bird ate well, and he seemed free from the trouble. Remaining apparently well for a week, he was returned to the pen of breeding birds. In four days time he was decidedly ill, every symptom intensified, and died two days later.

Now let me tell you the queer part of my story. The original owner tells me that he had no case like it and the cockerel seemed to be perfectly well when shipped. A bird that he has since bought and penned in same run as the other bird had, has become sick and died of "rattles." He says: "I must have sold a dead bird, as no case of rattles ever comes except as the last symptom of some other illness." I agree with him, hold him up as the kind of breeder I respect, and commend his statement that he wants "to do the right thing every time."

What was this disease? It was chronic bronchitis. The cockerel must have had something of the general roup nature in the late fall, been apparently "cured," and the sudden changes in temperature in mid-winter brought on the winding up of the disease process. "Rattles" in birds, old or young, is a serious symptom, and if the stock is weak from any cause it is not likely to be cured by ordinary treatment. Help must come through prevention. Pure air, clean droppings boards and floors, sweet food and water, will do more to prevent "rattles" than all the drugs you can name.

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## WIND PUFF.

An accumulation of air is sometimes found under the skin on growing chicks, making it puff out until sometimes the chick looks more like a small balloon. This is usually caused by imperfect nutrition and is more common in changeable and damp weather. Usually better feeding and care will remedy the trouble, though occasionally it is well to cut a small, V-shaped opening in the skin to let the air escape.

## PNEUMONIA AND DIPHTHERIA.

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How these Infectious Diseases May be Recognized—The Treatment of Affected Fowls.

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By O. H. Olson, M. D.

Pneumonia is an infectious disease characterized by inflammation of the lungs and a toxemia of varying intensity. It is one of the most fatal of acute diseases and in the fowl pursues a very rapid course.

The causes of the disease are exposure to cold, causing congestion of the lungs, resulting in inflammation; impaired activity of the general circulation; inhalation of irritant vapors; and in other cases it is caused by bacteria and disease germs. It is very common in young birds and fowls that are molting on account of their being unable to withstand sudden cold and exposure. Whenever birds are dying from any cause a careful examination of the carcass should be made and if the lungs are found very dark in color and distended with blood it tells the nature of the disease and preventive measures should then be adopted at once to prevent or lessen further mortality.

### Symptoms and Treatment for Pneumonia.

The symptoms of pneumonia are rapid breathing; the bird breathes with great difficulty and the breathing is painful; the bird is indisposed to move about, is sleepy, and does not notice things around it; the plumage of the bird stands erect, the wings are drooped and the head is drawn in; there is usually a discharge from the nostrils, or the mouth, of a yellowish or greyish fluid tinged with blood; the appetite is lost; there is great thirst, and the bird is usually constipated.

The bird suffering from this disease should at once be taken into a warm room. Give the fowl plenty of fresh air

without lowering the temperature of the room too much. Prepare a flax seed tea by pouring one pint of hot water on one ounce of flax seed, strain and give to the bird warm, to drink, every two hours. Give one drop of tincture of Digitalis in water every three or four hours to mature fowls and younger ones in proportion. Keep the bowels a little loose by giving a small dose of Epsom salts or castor oil. When the bird begins to show signs of improvement give a one grain quinine pill and ten drops of cod liver oil three times a day for some time.

#### **The Nature of Diphtheria.**

Diphtheria is a specific, infectious disease characterized by a local fibrous exudate, usually upon the mucous membrane. It is recognized by whitish, greyish or yellowish patches of false membrane upon the mucous membrane of the mouth. The disease is highly contagious and is a very serious affection. The disease is not limited to the mucous membrane of the mouth alone, but may appear in the throat, nasal passages, the eyes and extend to the wind pipe and bronchial tubes. The false membrane which forms upon the surface of the parts mentioned becomes intimately attached to the tissues, and when removed by force discloses a raw, bleeding surface.

#### **Symptoms of the Disease.**

The bird becomes very listless and the feathers are roughened. It lies with the back arched and the head drawn down to the body. It breathes very rapidly and there is great difficulty in swallowing. The bird shakes its head from side to side and has attacks of sneezing. There is fever. The appetite is lost and usually there is diarrhoea. The bird gradually grows weaker and weaker from prostration. There is a discharge from the mouth which is thick, grayish in color. The eyes are dilated, injected and projected. The bird seems to have great difficulty in walking. On examining the mouth it will be found covered

with patches of false membrane, or in the beginning simply small spots which gradually enlarge. This false membrane may sometimes cause complete obstruction to breathing so that the bird is rapidly strangled. It is stated on good authority that the diphtheria of fowls is not identical with diphtheria in man, and is not communicable to him.

#### **Treatment for Diphtheria.**

When the disease is first noticed to break out among the birds, measures should at once be taken to prevent the further spreading of the disease. The sick fowls should immediately be isolated and kept in a good warm room that is well ventilated and free from drafts. All birds that die should be cremated or buried at once. The house, yards, runs, drinking fountains and feed troughs should be thoroughly disinfected by a carbolic acid solution, made strong enough to destroy all germs. Use carbolic acid three per cent in thirty per cent alcoholic solution to apply to the patches of false membrane in the mouth or throat. For internal use give the following solution: potassium chlorate, one drachm; boric acid, one and one-half drachms; chloride of iron, one-half drachm; glycerine, one-half ounce and water, six ounces. Give ten drops three times a day. All houses should be thoroughly fumigated with formaldehyde or sulphur. As birds begin to recover they should be given tonic treatment and stimulating foods. Do not return the sick birds that have recovered to the flock until ten days after they have fully recovered from the disease.

## **BRONCHITIS AND PNEUMONIA.**

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**Two Serious Diseases Common to the Winter Season—Their Symptoms and The Most Effective Treatment.**

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**By Dr. N. W. Sanborn.**

Bronchitis is more common than pneumonia, is more often-recognized, and is mitigated by the use of medicines. Bronchitis, under bad sanitary conditions, may run into uncontrollable pneumonia.

Bronchitis is a catarrhal disease of the larger bronchial tubes. There is inflammation of the passages, swelling of the lining membrane, and an out-pouring of mucus. This discharge runs the course of catarrh in the nostrils; first thin, then sticky, lastly yellow and half-solid. With highly acute attacks there is heat of body, rapid breathing, and a half opened mouth. Appetite is dull, bird is dumpish, and thirst is evident. On examination, you find little trouble in nostrils, mouth or bowels. In the beginning of the disease there is a wheezing sound as the bird breathes. Later, in poorly treated cases, there is a decided rattling in breathing, especially when the bird is on the roost in the night. A slight start will cause the rattling to be heard.

Bronchitis is caused by chilling, damp houses and irritating substances. The every day cause of bronchitis is chilling from high winds, cold air blowing on the bird through a knot hole or crack. Dampness and dust increase the severity of attacks.

### **Treatment of Bronchitis.**

Acute cases of bronchitis are best treated with Epsom salts. One teaspoonful of the salts to every quart of drinking water will reduce the fever, empty the bowels, and

diminish the secretion in the larger tubes. After three days use of Epsom salts, change to arsenite of antimony. This is the best drug to use in the second stage of acute bronchitis as well as in the chronic form of this disease. One one-thousandth of a grain, three or four times a day is dose enough for a five to seven pound bird. This can best be given in the drinking water. Suit the dose to the size of your hens or chicks.

Give the ailing birds a dry, sunny, house, free as possible from dust and breezes. The diet is that mixture of grain and grit that will best supply the body heat. Better drop out meats scraps or green cut bones for a few days.

#### Pneumonia is Usually Fatal.

Pneumonia in fowls is generally fatal. By the time you notice the illness the bird is struggling for breath. It has always seemed to me that pneumonia in our flocks is due to exposure. This is not accepted by all poultry disease investigators. A few are beginning to think that, like pneumonia in persons, there is some connection between this disease and mice; no mice—no pneumonia. Whether this is true, or not, time will prove.

Pneumonia will be known by the following symptoms: high fever, very rapid breathing, wide-open mouth, total loss of appetite. The bird stays where it is. It remains on the roost, or in a corner of the house. I can offer a little promise of cure. Drop doses (a drop each dose) of tincture of aconite three times a day can be tried—with the hope that it will limit the spread of the disease in the lungs. The air cells are solid (some of them) with a semi-solid mucous exudation. If the hen has air space enough in her lungs to get all the oxygen required to maintain life she may live through the disease. If you see improvement in five days, be satisfied with the treatment. I need not add that the sick bird needs hand feeding with wet mash, medicine given with a spoon, and warm and dry quarters away from other birds.

## FOWL TUBERCULOSIS.

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An Infectious Disease that is Practically Incurable—How to Prevent Its Spread.

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By Dr. O. H. Olson.

Tuberculosis is an infectious disease caused by bacillus tuberculosis, the lesions of which are characterized by nodular bodies called tubercles, or tuberculous tissue that is diffusively infiltrated, which undergoes softening and may at last ulcerate. It is one of the most widespread of maladies. It is rare in cold blooded animals, but is occasionally seen among reptiles in confinement. It is an extremely common disease in fowls, but there are differences in bird tuberculosis sufficient to warrant its separation from tuberculosis in man.

Poultry and pigeons, experimentally, are not easily infected with the tuberculosis of people, cattle and other animals. There seems to be very little danger to birds from the human virus, while the bird tuberculosis spreads very rapidly from bird to bird. The bacillus found in fowls suffering from tuberculosis resembles that found in man, but is some larger and appears in more irregular forms and produces only local inflammatory processes in mammals.

### Symptoms of Tuberculosis.

The symptoms are rapid and progressive emaciation, shown by loss of weight, wasting of the muscles and prominence of the bones. The comb becomes pale, the bird is languid, dull and sleepy by degrees. In the latter stages there is a persistent diarrhoea, which steadily increases in intensiveness until finally causing death by exhaustion. The disease may also affect the joints and bones, causing lameness and swelling of the joints. Many of the symptoms of

this disease are very similar to those occurring with other diseases, thus making it difficult to make a diagnosis. The exact nature of the disease should be confirmed by an expert. A microscopic analysis demonstrating the presence of the bacillus is the best evidence.

The disease cannot be cured. All birds that are known to be infected should be killed. Do not attempt to save any bird from a flock that is infected. After the birds are killed dispose of them by cremation or burying them deep in the ground. The premises should receive the most careful and painstaking disinfection. Clean everything thoroughly and remove all droppings and manure and sprinkle over them a five per cent solution of carbolic acid. Wash floors and walls with five per cent solution of carbolic acid and treat feeding troughs, drinking vessels and nests in like manner. Then whitewash the whole interior of the poultry house, adding sixteen ounces of crude carbolic acid to each pail of whitewash. The yard and runs should also be cleaned and disinfected. Keep the poultry house open to sun and air for a period of three weeks before introducing a new flock.

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## WORMS IN THE CROP.

A chicken or fowl which has worms in the crop never is in good condition and never is productive or profitable. These worms are frequently the cause of poor digestion of food and of insufficient nutrition of the specimen. An examination of the crop of an affected bird will show these worms near the outlet. For adult fowls give one teaspoonful of oil of turpentine, mixed with the same quantity of sweet oil, after the bird has been without food for twelve hours. This should be repeated in two or three days. The bird should be placed in a small pen and the floor frequently disinfected to kill any worms which may be forwarded.

## CHICKEN POX.

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A Disease that is Spreading Rapidly—The Causes, Symptoms and Remedy.

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By Dr. N. W. Sanborn.

I can look back a few years and see no cases of this disease in many a state. Until five years back it was almost unknown north of Virginia and Kentucky. Lately it has made its appearance in all states and has passed the line into Canada. Chicken pox has been the dreaded disease in Cuba and nearly half of the chicks hatched die of this ailment. Under the name of "sore head" it has been the dread of poultrymen in the southern states. Much has been written of cholera, which by the way is usually indigestion, but chicken pox is proving to be such an injury to hens and chicks that it will soon be a favorite title to "Answers to Questions" departments.

Chicken pox is a serious disease. You may have had an outbreak in pleasant weather and lost few or no birds. If so, you know little of the workings of the disease in cold and wet weather. An August attack may not impress you with its severity, but let the disease break out in the rainy days of late October and you will look on with dismay at its rapid progress in your flock. Take warning from these statements and keep this disease from getting any foothold on your plant.

Chicken pox comes from a previous case. Without special germs you will not see this ailment. If the disease appears in your flock it will be because the trouble has been introduced from some other case. A new bird, a hen exposed at some county fair, a second hand brooder, may introduce you to this disease.

### The First Symptoms.

The first symptom is the little dark scabs on the comb and wattles. Some cases present nothing in addition. These may look like the dried blood that settles after the picking by another bird. I know a poultryman who received a dozen old hens in a single coop. He noticed one bird with a "blood spot" on its comb and thought nothing special. In two days that bird had a hundred scabs, eyes closed, canker in mouth. Ten days later seven of the other hens broke out with the disease. It spread to other pens, twelve hens were killed, eggs-for-hatching business spoiled for the season, and three hundred dollars knocked out of his profits of the year. The dead birds were buried in four feet of soil; two years later his hired man dug into this spot to get earth for filling his hen house, leading to another outbreak of the disease.

Chicken pox takes about eleven days to cover the time between exposure and the appearance of the first symptoms. The bird is feverish with the coming of the pox marks, slightly red in comb and wattles, appetite varying according to the severity of the individual case. If the days are wet and cold the cases are likely to show severe canker in mouth and throat, closed eyes and swelled head.

### A Simple Remedy.

The simple treatment is to add just a film of kerosene oil to every drinking dish. Every time the birds drink they get a small dose of the medicine. Added to this is the giving of calcium sulphide. This is a bad smelling powder, yellow in color, and costs about fifty cents for four ounces. Add one heaping teaspoonful to the wet mash for twenty-five hens and feed it all. Do this every morning for ten days, or until every symptom has disappeared from the flock of sick birds. I advise that the film of oil be added to every drinking dish on the place as a stop to spreading of the disease.

Extreme care is needed to prevent the passing of the trouble to other pens. A few of the dried scabs in a run, or pen, with a little moisture added, is all that is needed to pass on the disease, or start a new outbreak another year. Clean out, clean up and keep clean. Take out the old soil—heel in new. Take the infected earth beyond the reach of ranging hens and chicks. Strive to prevent the first appearance of chicken pox. If it comes, you have trouble enough to keep you busy.

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## GAPE WORMS.

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**Where They Come From—How Maintained and Spread—and How Prevented.**

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**By Dr. N. W. Sanborn.**

Along about the middle of May I begin to be asked what to do for gapes. These inquiries keep up until the middle of August, when they stop for nine months. The time to study this disease is before it appears. It is so preventable that no poultryman needs despair of getting rid of it.

Gapes is a disease afflicting young chicks. It seldom is seen in very small chicks or in mature birds. It appears a week or two after the chickens begin to range out in search of seed and bug. The prominent symptom is the "gapping" that gives the name to the trouble. The chick raises his head, opens his mouth widely, and yawns as though he was both short of wind and full in throat. The chick loses flesh, his feathers become ruffled, and quite often there is a diarrhoea.

Catching one of these sick chicks, you kill it. With a thin bladed knife, sharp, you cut open the skin along the windpipe. Then split open the windpipe itself, and look

for the gape worms. These are fine, hair-like, half-an-inch-long worms, attached to the lining of the windpipe. Usually you will see two worms, close together, attached to a single point of membrane. The worms mate in two's, live on blood they suck from the chick, and irritate the growing bird. The gape worms, if present in numbers, weaken the chick from the blood loss, as well as disturb the nervous system from local irritation.

#### The Usual Treatment.

The usual treatment of gapes has been the trying to get the worms up out of the windpipe. A horsehair is twisted into loops and inserted in the end of a smooth wire. This is introduced into the throat and windpipe of the chick and efforts made to entangle the worms in it. It is withdrawn and worms shaken off, and then returned for more. This all looks simple but it is not without its dangers. Frequently the worms are dislodged—only to fall into the bronchial tubes. Another line of cure has been the inhaling of irritating dust. The chicks are put into a burlap-covered box and airslaked lime dusted into the box. This starts coughing and sometimes the worms are coughed out. The dust irritates the tubes and lungs and may do more harm than good.

#### Gapes and Earth Worms.

The study of gapes leads me to believe that the common earth worm plays a part in the trouble. Given a case of gapes and the soil, as well as the earth worm, becomes infected. The chicks seek the worms, eat them, and in turn become the host of the gape worm. Many poultrymen write me that they feed earth worms to their chicks and never have gapes. So do I, and I have never had a case of gapes on my place. Let me buy a few chicks with gapes, give them the run of my yards, and I could then feed worms at great risk. You must have both the gape worm and the earth worm in order to get this disease into your plant.

Soil infested with gapes should be abandoned for two years, and cultivated to growing crops. New ground should be used for growing chicks and the old yards well fenced against the chicks. Better give up the keeping of chicks for two years rather than lose two-thirds of your chicks by gapes. Possibly the holding over the laying stock two seasons—hatching no chicks—would clear up the danger from this disease.

Having some idea of the cause of gapes, knowing the general line of prevention, I think it is up to every progressive poultryman to stamp it out. There is no satisfaction in treating chicks with gapes. You may pull part of the flock through, but it will be after wasted time and a few "bad words." Get to studying the cause and prevention of the diseases of the chicken yard and take pleasure in owning healthy hens and chicks.

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## RHEUMATISM.

Rheumatism in fowls is usually apparent by weakness of the legs. The fowls walk with halting, jerky steps, in many cases lifting their feet high in front like a horse with string halt. As the disease progresses the victims often hobble on their hock joints and their feet draw up and become apparently useless. Their appetites usually remain good.

It is caused sometimes by overfeeding with meat and insufficient green food and sometimes by damp quarters. If the ration contains a great deal of meat the amount should be decreased and the amount of green food increased. The quarters should be made dry and well-ventilated. For the whole flock add three grains of salicylic acid to each quart of water. For individual treatment, place the bird in a warm, dry coop, thickly bedded with straw or leaves. Give plenty of milk and grain but no meat. A tablet containing one-quarter to one-fifth of a grain of salicylic acid may be given morning and night.

## LIMBERNECK.

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A Disease Caused By Ptomaine Poisoning—Where the Poison Comes From—How to Effect a Cure.

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By Dr. N. W. Sanborn.

There have been reported to me the past year more than the usual number of cases of limberneck. Either poultrymen are getting more interested in diseases of their birds or else the cases of this kind are more frequent. Limberneck is named from a single, prominent, symptom—the weak condition of the muscles of the neck. The hen, or half-grown chick, is noticed to be unsteady on its legs with head low down. When resting on the floor the head is lowered until its weight is all on the ground.

Limberneck is caused by ptomaine poisoning. This poison is formed within the body of the bird, usually from meat that has been eaten from some dead animal or bird. Generally the flesh is badly decayed when taken, as shown by the presence of maggots in and around the dead carcass. The maggots are not the cause of limberneck. You may feed them freely and get no harmful results. I have seen cases of limberneck that came from feeding spoiled green cut-bone in warm weather. Occasionally I have met cases that seemed to come from meat that was perfectly fresh when given—but that soon rotted in the bowels of the fowl.

The common sources of spoiled meat are the dead fowl under the out-building, the dead calf over the pasture wall, or the woodchuck thrown into the neighboring thicket. Long kept cut-bone and fermenting mash that is rich in animal material, are other sources that need inquiring into. Meatscraps, or meatmeal, that has heated and formed lumps produces diarrhoea, but is not retained in the bowels long.

enough to allow absorption and poisoning, as is the case with decaying flesh. It takes very little "yeast" in the intestines to change normal digestion of meat into decay. It is the product thrown off by the bacteria that is absorbed and poisons the nerve centers.

#### A Successful Treatment.

The treatment is indicated by the cause. At once sweep out the spoiling contents of bowels; get rid of the decaying substance that is causing mischief; stop the supply of irritation and then turn your mind to clearing out that which has already been absorbed. Epsom salts or castor oil work well with hens and chicks. A five pound pullet will need a half-teaspoonful of Epsom salts in six of water, feeding it to her until it has all gone into her crop. Castor oil is used more often, is nearly as good in its results, and should be given in teaspoonful doses, every three hours, until the bowel discharge is full and free. One thorough cleaning out of the intestines is sufficient. Then add five grains sulpho-carbolate of zinc to four ounces cold water and set before the ailing bird for common drinking. Use the zinc salt mentioned for three days. Where several birds are diseased they can be put into the same small pen and treated in common.

When you have a plain case of limberneck be on the watch for the very beginning of it in other fowls. On the first suspicion of trouble in a new case, clear out the contents of the bowels with either the oil or salts. You will save time, labor and birds if you follow this suggestion.

Get out of the habit of leaving dead birds under the roost, in the yards, on the nest, waiting for the convenient moment that is long in coming.

## CROP-BOUND.

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The Cause of This Troublesome Ailment and The Remedy—  
How the Crop is Opened.

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By Dr. N. W. Sanborn.

Crop-bound hens are not unusual in the springtime and crop-bound chicks are not rare. We all know the looks of a crop-bound bird. The breast is bulging out, the bird unbalanced, the hen or chick awkward in its every motion. The bird is often at the feed dish but eats little, makes many trips to the water fountain but drinks little. The common cause of the filling of the crop is the obstruction of the outlet by long pieces of hay or straw. I have had more cases in fowls in the month of March when they were first let out on the range after being shut in all winter than at any other time. They seem to hunger for the long, dead grass, and eat it to excess.

I do not get so many cases now as before I adopted the use of lots of cut clover for food, as well as deep litter in the laying pens for exercise. The shut-in, small flock of the village yard is most in danger from crop-bound. This home bunch of birds gets, in most instances, plenty of grain and meat, but little in the line of "filler." The hen, to maintain health, needs something for filling, as well as does the cow. The laying hen should be supplied cut hay or clover, or grass range in warm weather, in addition to the best ration that you can find.

### Successful Treatment.

Having a hen with the full crop what shall we do about it? The "first aid" in such cases is to put half a teaspoonful of cooking soda into a cup of water and feed all you can to the hen. Then holding her head downwards

you work gently the contents of the crop and try to get it into the mouth. If the contents of the crop is soft and the grass not long you may succeed in either starting the material onwards or in emptying it out of the mouth. Failing to succeed you must then either kill and eat the hen, or proceed to open and take out what is filling the crop. The crop-bound hen should not be in bad condition to make a "pot-pie" if you notice her condition early, as the watchful poultryman does.

#### **Opening the Crop.**

To open the crop successfully calls for clean hands and careful work. The feathers are first picked clean from a spot as large as a half dollar, right over the center of the swollen crop. With a sharp knife you cut through the skin only, making a cut an inch long. Spread this line of cut till it is almost oval in shape. Then pulling the skin slightly sidewise, so the cut through the crop is not just under the first line you made through the skin, run the knife into the crop until the opening is about three quarters of an inch long.

With toothpicks, pieces of wood, a small spoon, take time to pull out the contents of the crop. When this is done run your finger into the crop and see whether something is left filling the outlet. There may be a piece of wood or bone filling the outlet. If so, remove it. Fill the crop with water and then empty. The line of cut in the crop will need three or four stitches to close and that in the skin as many more. Make the sewing in two lots. You want the line of the crop cut to heal out of the direct line of that in the skin. Make each stitch by itself. Put the needle through, and tie and cut the white silk that you use for this purpose.

When through with the operation coop the bird where it has not access to long grass or straw for a week. Feed a balanced wet mash for a few days and then return the bird to her old pen. If you will go about the matter of

curing these cases with simple and careful methods you should seldom lose a bird from the operation. On the other hand I doubt the judgment of a man who will go through all this on a hen that is worth a single half-dollar. The valuable breeder, and the fine show hen or cock, is entitled to our time and patience in anything we may think best to do.

Some of the old cases of enlarged crop can be improved in looks by cutting out some of the skin and crop and sewing up as outlined. The cut is made longer than for crop-bound but the same plan followed, and with scissors you remove sufficient skin and crop to make an opening like that made by spreading the cut as described before. Then sew closely and let the fowl run with the flock after perhaps a week of seclusion.

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## INDIGESTION.

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### Imperfect Digestion Opens the Way for Many Diseases—Some of the Principal Causes of Indigestion and How They May be Avoided.

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The digestive apparatus of the fowl must be kept in good working order or the entire system from the heart to the minutest blood vessel suffers. Imperfect digestion of food means a dibilitated body and an impoverished blood. Some of the principal causes of impaired digestion, which means a weakened digestive system, are overfeeding, lack of exercise and unvaried or poorly balanced rations.

Overfeeding overtaxes the organs, which strive beyond their strength to take care of the immense amount of food forced upon them. In doing this they become weakened and in time not able to preform their duties properly, even though the amount of food is reduced to the proper point.

Lack of exercise in fowls, as in man, causes digestive trouble. The body requires exercise in order to properly assimilate the food taken into the crop and the fowl that spends most of its time idling, lays on a quantity of fat and appears bright and healthy, with a red comb and face, but is nevertheless getting its digestion out of order and presently will be attacked by some disease or perhaps drop dead from fatty degeneration of the heart.

The poorly balanced ration, or the invaried diet, probably causes more trouble than the other two mistakes. Many-flocks are fed largely on one, or at the most two or three, varieties of grain. On many farms corn or wheat are most readily obtained and on those grains, and perhaps only one of them, the farm flock is made to subsist. If it happens that the flock has the range of the barns and barn-yards in winter and the freedom of the farm in summer, the fowls can sometimes find sufficient other food to partly balance the ration and in that way ward off severe trouble. In any event, it should be remembered that the system of a fowl requires a certain amount of many different food elements and that these food elements do not exist in sufficient quantity in any one kind of food. Corn, for example, contains much fattening and heating material but very little in the way of flesh, muscle, bone and blood-making elements. Therefore, if the ration is principally corn, the digestive system has to work overtime trying to digest a sufficient quantity to obtain a fair amount of the elements in which corn is very weak. The same is true of all other single grains, only with different grains the amount of each element varies.

Lack of sufficient animal food which is rich in protein compels the digestive apparatus to handle an extra amount of other food in which protein is weak in order to supply the system.

The cure for indigestion is the removal of the causes and the correction of the methods of feeding, etc. Vigor-

ous fowls which have good air to breathe, a reasonable amount of exercise and a sufficient quantity of properly balanced food, are never troubled with indigestion nor any of the various diseases which follow it.

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## DISEASES OF THE LIVER.

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### Causes, Symptoms And Means to Prevent a Frequent And Troublesome Ailment of Fowls.

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By Dr. N. W. Sanborn.

The liver is a much abused organ. No part of the fowl will stand such treatment and yet pull itself out of difficult places. The common diseases of the liver are connected with digestive disorders. Seldom is the liver upset except in cases where the whole digestive tract is involved.

#### **The Fatty or Enlarged Liver.**

An enlarged liver is largely added fat. This increases size and weight, disturbs the circulation of blood and prevents the formation and passage of bile. Other functions of the liver are disturbed but those mentioned are the ones that most concern poultrymen.

Fatty or enlarged liver comes as the result of too much food, or too little exercise. Just so long as corn and cornmeal is the one prominent ingredient of the day's ration we shall have many cases of liver trouble. The flock that gets a breakfast of cornmeal, with dinner and supper of whole corn, is likely to show some cases of liver disease before the end of the breeding season. Too many farmers, with full corn cribs, make corn the staple feed of their hens and chicks. The hens that are made to exercise for hours in getting the feeds of corn are less likely to develop liver ailments. The man who carries the feed pail can so handle the exercise problem as to diminish the danger from large

amounts of corn. I have seen many flocks on the farms, closely housed in winter, with no litter, fed heavily on corn and cornmeal with some bran, that did not produce eggs enough to pay their bran bill, that supplied many cases of liver disease before five months had passed.

With the fatty liver comes the baggy condition of the abdomen. This can be seen in some cases—felt in all. Many poultrymen do not realize the ailment until the latter symptoms, such as loss of weight and chronic diarrhoea, appear. These are the final steps in the movement of the disease of the liver.

What is true of the feeding of hens in winter is true of fattening cockerels. If you run the time of fattening too long you will get enlarged and diseased liver. It is necessary to feed corn products to round out the rooster but it must be done quickly. Just before the time when digestion fails and the liver begins to cease its work the cockerels should be killed and marketed.

#### **Purple Comb a Symptom.**

The one prominent symptom of liver disease is a constantly purple comb. The comb that gets purple, or nearly black, on violent running of the fowl is usually due to heart weakness. These cases will show normal color of comb most of the time. In liver disease the comb remains dark all the time. The purple may show only in the back of the comb or it may cover the whole surface.

Why does corn injure the liver? The simple story is this: fowls need certain different elements to nourish them. Corn is not a complete food. It is too rich in fat-building matter. If fowls cannot get what they need in variety—and corn is abundant—too much is eaten in the endeavor to get the other elements required. The unneeded part of the corn is deposited in various parts of the body and the liver is the most often to be used. Hampered, upset, out-of-condition, the liver stops its work, little by little, and you have a bird that is sluggish, thin and worthless.

A case of liver disease that has reached the diarrhoea stage is hopeless to treat. The early dietetic handling of the case with baggy aid men is hopeful. The prevention of all liver diseases by proper care and feeding of the flock is possible to you who will handle your stock along well-known lines of feeding. The balance ration has sometimes been made fun of but it is the proper method of feeding.

## THE EGG PASSAGE.

### Causes of Retained Eggs and the Proper Treatment.

By Dr. N. W. Sanborn.

Diseases of the egg passage are not infrequent. They are prone to appear in young pullets that are nearing the end of their first year, and in hens that are about two and three years of age. Sometimes a pullet will exclude her first and second egg and then fail with the third. Much depends on the size of the eggs of the first litter. If they increase in size gradually there is little danger of trouble, but let an extra large egg come along and it may fail in being passed. And it may become lodged in the passage, irritating it and the pullet, and then become a source of danger. It may rupture the egg duct, may get broken through the attentions of the male, or in time make its way out.

Eggs may fail to pass because of an over-fat condition of the hens. The unnatural condition works two ways. The deposits of fat around the egg organs hinder the passage of the egg, and the fine deposits of fat in the small muscles of the organ weaken the wall of the duct and lessen the strength of the propelling parts.

### Too Much Fat is Dangerous.

Some poultrymen tell us that they want their hens fat, that the fat hen is the business hen, and a bird has to have fat

deposits before it can do its best. While there is a grain of truth in this, it is far from being safe to follow. The hen that has these heavy layers of fat has been badly fed, is laboring with a clogged liver, and often breaks down with indigestion and diarrhoea in the late winter months. She has been pushed so hard that she gives out when you need her eggs for breeding.

A line of feeding that presents a ration so balanced as to provide for the bodily needs seldom makes all the hens of the flock too fat. Now and then a single hen out of the flock will become over-fat on the ration that is right for the other birds. You cannot supply a ration that will fill the needs of every hen in a large flock, but you certainly can so feed as to keep the most of the pen in a good condition that is favorable to health.

The hen or pullet with a retained egg shows her condition by making many trips to the nest, remaining on it for hours, and trying to pass the egg. You will quickly catch on to the trouble if you watch your birds with any care. If the egg is broken there will be a discharge with every attempt to strain. When an egg has broken through into the abdominal cavity the hen will show it by her half lifeless state. She has a diarrhoea, no appetite, is warmer than normal, and later on will show signs of pain.

#### Treatment For Retained Eggs.

The retained egg can sometimes be helped out by a simple oiling of the passage with castor oil. If it is abnormally large in size it should be broken and removed in a crushed condition. Then the next egg may come all right.

When an egg has broken through the passage the hen generally dies in a few days. There is nothing that you can do for this trouble unless you promptly kill and eat the hen before she gets feverish.

Vent gleet quite often extends into the egg passage. This gives a dry state to the passage, tender and hot, and

pain prevents the hen using much strength to pass her eggs. Gleet should always receive proper treatment lest it get into the egg organs. Sulpho-naphthol can be added to water until the mixture is milky, and then a bunch of cotton wet in this should be inserted into the end of the bowels. Get rid of all catarrhal troubles of the vent as quickly as treatment will do it.

The egg passage, as well as the ovaries higher up, are sometimes irritated by too high spicing of the winter food. While this method of getting winter eggs may succeed for a few weeks, it is not safe to use. Condiments should not be used any stronger than you would in your food on the home table. To go beyond this is to take chances of stirring up trouble in the egg producing organs.

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## BREAK DOWN.

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### A Common Trouble in Fowls at this Season—The Causes and How to Prevent—No Cure.

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By Dr. N. W. Sanborn.

In the late winter months, and through April and May, you will have cases of so-called "break-down." The hens will appear droopy, dull in color of comb and wattles, and will stop laying. There are two classes of hens that are likely to get in this condition. First those that have been great eaters, regular gluttons, that have been over-fat for months. Second, those that have been pushed for eggs by the use of stimulating spices and drugs and that have gone to pieces because they had reached the limit of endurance.

In our rush for egg records and winter egg profits we may have been thoughtless of the future work and health of our hens and pullets. If we divided our winter egg layers from future breeders and handled and fed the two lots according to their needs, the loss of a few record layers will be

more than offset by the creamy prices of midwinter. In a business flock, fed for winter eggs, you may expect a few cases of breakdown. You must feed a ration right for the average hen in the flock. While most of them will keep in good health there will be a few that become thin and some that will fat up, have liver disease and die in the late winter. It is when we get ten per cent or more of these cases that we begin to ask causes and demand prevention. The man who is having many cases of the disease I am considering must get on to a better ration and supply conditions that make for better health.

#### **Proper Care is Prevention.**

The prevention of break-down is the story of how to feed and care for hens and chicks. It is giving a well-balanced ration, not forgetting vegetable and animal food, and seeing that sunshine gets a chance at every part of the floor of the hen house. It means that mould is not let form on the litter of the floor and that air is let into the houses so constantly that the hens need never re-breathe the air they need for life and health. Too many poultrymen feed a ration that is lacking in animal food, causing the stock to overeat in their craving for protein. Better a moderate amount of a balanced ration than the larger weight of the wide ration that is the usual one of the farm.

There is danger in feeding large quantities of spice or condiments. To overdo the matter is to stimulate the digestive, as well as the reproductive, organs, and cut short the egg work as well as in many cases the life of the hen. She will lay extra well for a while and then, when the mischief is done, become stolid, sluggish and present the symptoms of the condition I am warning you against.

#### **Separate Hens and Pullets.**

Knowing the causes we can plan better for next winter's work with our hens and pullets. We can pen hens and pullets in different yards so as to better feed them according to age. The young stock will stand corn products

better than the old hens. They will respond to stimulation with more safety than yearling hens. The older the layer the more it needs exercise. Then hens that are laying can be fed higher than those that are resting. I suppose there may be a single good ration that will suit all conditions but I have never found it.

#### No Practical Remedy.

What can be done for the cases of "break-down" now on hand? Very little. You may get them back to laying for awhile but they soon get off condition and are a lot of trouble until dead and buried. I can only suggest more green food such as lettuce and cabbage, mangles and turnips, cut clover and hay. Each case should scratch for its whole grain. No scratch, no food. The hopper method is bad for these half sick hens. Take out a window in each pen and cover with wire netting, letting air and sunshine in freely. One teaspoonful Epsom salts and twenty grains sulpho-carbolate of zinc to every quart of drinking water will be dose enough and do something to help the hens out of the torpid condition. Never use eggs for hatching from any one of these cases of break-down.

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#### "GOING LIGHT."

Now and then a poultry keeper reports that certain of his fowls lose weight rapidly and finally waste away and die. This is what is called "going light" and is said to be caused by a certain germ for which no positive remedy has been discovered.

The best treatment that can be given is plenty of wholesome food, and free range in the summer time or plenty of green food and sufficient exercise in winter. A few drops of tincture of chloride of iron in the drinking water is recommended. This does not refer, of course, to cases when the bird becomes thin from other diseases, like digestive troubles, in which case the disease may be cured and the bird will take on flesh again.

## COMMON BOWEL TROUBLE.

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Most Cases of This Trouble are Due to Simple Causes Which May Easily be Removed—Some of the Cures and Preventives.

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As a rule bowel trouble is traceable to careless feeding, improper sanitation, moldy food or litter, access to decayed vegetables or decayed meat. A badly balanced ration causes trouble by overtaxing the digestive organs and heavy feeding has the same effect. Poor sanitation, which permits dirty, filthy quarters, improper drainage, insufficient ventilation, etc., are often responsible for the trouble. Feeding spoiled or moldy grains, or the use of moldy scratching material or the accumulation of mold through dampness in the poultry house is likely to affect these organs through the spores developed by the mold and further developed in the system of the fowl. The feeding of too much beef scrap or meat meal, which is simply the overloading of the system with protein, causes the same result. If the fowls are fed or have access to decayed fruit, vegetables, or meat or bone, the digestive organs are affected and bowel trouble is the most prominent symptom.

These causes show how easy it is to create trouble of this kind and at the same time prove that it is possible to prevent similar trouble. Occasionally severe cases are mistaken for cholera and treated with the harsh remedies that are prescribed in some cases for that more serious disease. In such instances the trouble is often increased rather than cured. On that account, it is well to try simple remedies at first and to resort to harsh ones only after the simple ones have failed to prove effective.

**Some Simple Remedies.**

Often times bowel trouble can be cured by withholding all food for a couple of days and then feeding very lightly for a week. This enables the digestive apparatus to clear itself of the poisonous matter that may have been deposited there and to secure a needed rest. At all times it is wise to disinfect thoroughly the feed and drink dishes, the roost and roost platforms and the floor of the poultry house. This will kill the germs of disease and prevent spread of the trouble by means of the germs. In cases where the trouble has got considerable start, one dose of Epsom salts in proportion of a heaping tablespoonful in a pint of water put before the flock after it has been without water for twelve hours and kept there until the flock has consumed considerable of it, will assist in ridding the system of any poison that may have accumulated. Sometimes withholding water and giving scalded milk with grated nutmeg will effect a cure and if that does not prove effective, boiled white flour may be added until it is of the consistency of thick cream. In certain cases which do not yield to the simpler treatments, give each fowl morning and night a tablet of mercury bichloride, 1-1000 of a grain drug strength.

One of the best preventives is common wood charcoal which is sold by poultry supply dealers or which may be sifted from the ashes when the poultry keeper burns wood. If this is before the fowls at all times much loss from bowel trouble and the diseases that follow it will be avoided and the fowls will be in better health and more productive.

**Bowel Trouble in Chicks.**

Many correspondents speak of losing many chicks from bowel trouble. The bowels become loose, the vent clogged, and the chicks grow smaller instead of larger, and eventually die. We have experienced just such trouble, but have learned how best to control or obviate difficulties. Chicks in a brooder that are not kept warm enough, and busy enough, are subjects to this looseness or weakness of the

bowels. Chicks that are crowded in the brooder are often affected in the same way. Chicks running with a hen, and the hen having too many to cover comfortably, are similarly affected. Young chicks must be kept warm and dry, and must be allowed scratching ground where they can exercise and busy themselves. Too little exercise is a fruitful source of trouble.

Chicks fed upon dry feed in sufficient variety, given plenty of grit and a place to scratch in, or a yard to run in at pleasure, will be invariably strong and happy. Exercise is one of the essentials. Chicks running at large with-a hen have exercise, while brooder chicks have not, unless the scratch yard is prepared for them. If the weather be chilly, the chicks will run from the brooder to yard, and back again to their warm home when tired and chilly, just as they cuddle under a hen in like circumstances. When the weather is warm the day through, they will seldom go near the brooder from early morning until nearly night. They love to scratch and run and they must be given every opportunity to do so. Bowel trouble will not be found among them.

Doctoring little chicks for this trouble is not satisfactory and the only safe way is to prevent it. Frequently disinfection of brooder or coops is necessary.

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## GASTRITIS.

Gastritis is the name given to the swelling of the food passage near the gizzard. It is seldom met with except in connection with crop troubles and is brought about by the same causes, including overfeeding and the use of too much spice or the eating of something poisonous.

The symptoms are lack of appetite, bowel trouble, some fever and a general inactivity. The proper treatment is to remove the irritation. If the drinking water is boiled with a little rice in it, it will allay the irritation.

## FOWL CHOLERA.

Causes, Symptoms and Treatment of the Most Dreadful Disease of Poultry.

By Dr. O. H. Olson.

This disease is very common and all varieties of domestic poultry are subject to it. It is characterized by a persistent diarrhoea, rapid emaciation and great prostration. It is a disease justly dreaded by all poultry raisers owing to its dangerous character. It is of a highly contagious nature and spreads rapidly in a flock of fowls, often destroying a large number in a few days. In other cases the disease assumes a more chronic form prevailing several weeks or months.

In order to prevent this destructive disease from making its appearance among our poultry, it becomes necessary to use the strictest sanitary precautions, bearing in mind that it is a highly contagious disease caused by germs, which in some manner may be brought upon the premises from some other place where the disease exists. It may be brought by purchased birds, by eggs or by other animals. It is necessary to be constantly on guard against the introduction of contagion. All purchased birds should be isolated and quarantined for several weeks before they are allowed to mingle in the flock. In hatching eggs from other yards, keep the chicks separate and watch them for a time to make sure that they are healthy. Dogs and other animals carry contagion and should be kept out of the poultry yard. Birds exhibited at shows should be quarantined for a period of ten days after their return.

### Cause of Cholera.

The disease is caused by bacteria and is usually brought on by taking food and drink that is contaminated by the

excrements of sick birds. The infection may occur through worms, abrasions of the skin or by the inhalation of germs. It may also be caused by the birds eating particles of flesh and blood from the carcasses of affected birds that have died from the disease. It is often introduced with new birds that are purchased for improving the stock or with eggs for hatching.

#### Symptoms of the Disease.

The symptoms are high fever, great thirst, great weakness and prostration. The digestion is arrested, the crop remains full, the bird drinks but refuses food and appears to be in distress. The comb of the affected bird, becomes purple in color. The discharge, called the urates, which in health usually is white in color, becomes yellowish, deep yellow, or in the final stages a greenish yellow or deep green. As the disease progresses the diarrhoea becomes severe, although it is a very prominent symptom throughout the whole course. The bird separates itself from the rest of the flock, the feathers are roughened, the wings droop, the head is drawn toward the body giving the bird a rounded appearance, the bird grows extremely weak and drowsiness sets in, or a stupor from which it may be difficult to arouse it.

#### The Proper Treatment.

In the first stages give tincture capsicum, tincture opium and tincture camphor, each two drachms; tincture ipecae and spirits chloroform, each one drachm. Mix and give to each mature bird five drops three times a day; or, a little copperas, alum and resin may be given, mixed together. Put one drachm of carbolic acid in one pint of water and give one-half a teaspoonful several times daily. Isolate all sick birds immediately and keep them in comfortable quarters. Everything about the poultry house should be disinfected by spraying with a solution of carbolic acid, one pound of carbolic acid to ten quarts of hot water. Remove and disinfect the droppings every day. Fumigate

thoroughly and whitewash the inside of the poultry house adding some crude carbolic acid to the whitewash, one pound to each pail of whitewash. Everything about the poultry quarters must be kept as clean and sanitary as possible.

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## INTESTINAL WORMS.

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### Round Worms and Tape Worms How They are Transferred Remedies and Preventives.

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By Dr. N. W. Sanborn.

Chicks and hens, of all ages, are more or less troubled with worms. They may be so few in numbers as to make no impression on the birds, or large collections of worms may cause decided losses of birds or profits. There are flocks that, from year to year, seem to escape from worms of any sort and I know poultry yards where you cannot dress a chick or fowl without finding the bowel discharge loaded with thread-like worms.

The care given to keeping yards and houses clean determines partly whether worms will increase or not. Filthy premises are good breeding grounds for worms. Unremoved droppings from the roosts, or floor litter that is damp and dirty, help spread the crop of worms that we are considering in this article.

Gapes and gape-worms I fully covered in a previous article, and this time I desire to tell you of the worms that are found in the intestines of our hens and chicks. Seldom is any attention paid to worms until a bird dies or is dressed for market. Few poultrymen study the contents of the bowel discharge in the illness of their stock. I am confident that we have had whole flocks of well-bred hens and pullets that were far below what they should

be from the irritation and drain that comes with the presence of large numbers of worms, or from a few tape worms.

#### **Round Worms.**

These are found in most hens and in some chicks. They live in the semi-liquid matter that fills the bowels. They seldom get into the lower end of the intestines, but pass their life in the small sized bowel that extends from gizzard to rectum. It is only when there is a diarrhoea from any cause that we see many worms expelled with the bowel contents. The round worm is commonly not large or long. It is wire shape, from a third of an inch to three inches long, with a pencil pointed head and a blunt pointed tail. The tail end is much the shape of the finger end.

Hens with chicks are likely to infect their flocks with worms. While you will see no worms in the droppings of the hen as she leads her little ones there are enough passed to get mixed with the food that the chickens eat. When a hen or chick gets its start with the round worm it seldom frees itself of them. If they increase in any considerable numbers the birds have the appearance of indigestion. There is light comb, sluggish activity, few eggs, and in bad cases a slight diarrhoea. The best treatment to follow is that which will throw out the full supply of worms. A watery diarrhoea, induced in any manner, will do the business. One-half teaspoonful Epsom salts, dissolved in a tablespoonful or two of warm water, and poured down the throat, will work well in an hour. Or, you may add a tablespoonful of the salts to a quart of water and let it be the only drink for the day. Clean up all droppings, following the use of a laxative, as you wish to keep the hens from eating again the very worms that have troubled them.

#### **The Tape Worm.**

This worm is not common, as is the round worm, but is seen often enough to make it worth our while not to omit it from this series of disease articles. The tape worm mani-

fests itself in few ways except in general thinness of the bird. The appetite may be good, sometimes extraordinary, and yet the hen is much less in weight than you expect. A bird that is thin and pale, with splendid appetite and on the constant search for food, should have the bowel discharge watched for the narrow, tape like, pieces that break off from the worm. Having found this, or even suspecting tape worm, try to expel the worm or worms. Nothing is better for this than a single dose of male-fern. Six drops of the oil of male fern is mixed with one teaspoonful castor oil and given to the fowl in the early morning when its crop is empty. No food is given the night before, or during the day of treatment. Two hours after giving the male fern, set before the bird a water dish containing one tablespoonful Epsom salts to a pint of cold water and let this be their only drink for the day. Take a look at the bird several times during the day, watching out for the worms. You will not mistake it for anything else. Burn all discharges of the day as fast as you are able to get them.

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## FITS.

Fowls and chicks seldom have fits but occasionally one will appear to become suddenly blind, twist the head backward and to one side and sometimes turn completely over, occasionally becoming apparently unconscious for a very short time. They recover almost immediately and appear to be as well as ever until the next attack, which may be very soon or not for some time. Sometimes this is caused by careless inbreeding of the stock or irritation of the intestines by worms, parasites, or indigestion from eating some irritating substance. It is not advisable to breed from a bird so affected. More careful feeding and the addition of a little crushed garlic bulb to the food each day may effect a cure. As a rule such birds had best be disposed of.

## WHITE DIARRHOEA IN CHICKS.

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The Symptoms and Principal Causes of This Troublesome Ailment—Means to Prevent.

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By Dr. N. W. Sanborn.

Spring is the season of the year when chick losses from disease become common. Among the various illnesses that afflict chickens is that known to poultrymen as "white diarrhoea." Much has been written and told of this ailment and authorities do not seem to agree as to causes and treatment. If the white discharge from the bowels was considered as a single symptom in the sickness of the chick, and not the disease, the matter would not present so many different points-of-view.

The white discharge that has made so much talk, that has caused many persons to go out of the chicken business, is largely due to increased urinary secretion. If other functions did better work, the kidneys would not be called on to do extra labor.

### Apparent Symptoms.

The first indication that the chick is ill is usually seen with coming of the pasty discharge that causes the chick to "paste up" behind. Then the chick is noticed to eat less and less, is thirsty, and soon shows signs of general weakness. It may crowd up near the source of heat in the brooder, get into a corner of the house it lives in with the mother hen, or stand in the sunny spot in the sunshine. The symptoms increase in severity, the chick presents every indication of severe illness, and is likely to be found dead under the hover of the brooder or under the feet of the brooding hen when the coop is opened in the early morning.

There are various causes for this serious illness. I think the most common one is wrong feeding. Either the

chick is fed while yet too young, or the food given is rough and hard to digest, or fermented or spoiled food is given it to eat. Many cases of so-called white diarrhoea are simply cases of indigestion.

#### **Direct Causes.**

The next cause, in importance, is chilling of the newly hatched chick. This is seen in hen-hatched as well as in incubator chicks. Whether the hen, who has been inactive for three weeks, takes time to dust, or whether the chick that has just come out of the egg, tumbles over the tray into the cooler chamber below, makes no difference in results. Let a damp chick stay in a cool place for half an hour and the chilling that follows ends up in many cases of the character we are considering.

Low vitality in the breeding stock is to blame for some of the sick chicks of the class covered in this article. Chicks that are lacking in sturdy qualities fail to resist food and conditions that well-bred birds thrive on. A sturdy, well-hatched chick starts in life with the battle nearly won. Even the neglect of the hen, or the chill of the lower chamber of the hatching machine, makes no impression on its strength.

It takes a few days for the chill, wrong ration, or spoiled food to influence the health of the chick. Several days pass before you notice anything out of the usual. The chilled chick of the machine usually lives from five to fourteen days—yet the mischief was done in its first day.

#### **How to Prevent.**

Many cases of the form of bowel trouble that heads this article can be avoided by knowing causes and handling the chicks accordingly. In my own work with chicks, I keep them on the tray of the machine until twenty-four hours old. Then the tray is removed and the chicks have the run of the bottom of the incubator. When two days old, the chicks are removed to a well warmed brooder that has plenty of space heated up to ninety-five degrees. No

food is given till the chicks are four days old, except what they find in the warm waste that is used to cover the floor of the brooder. At four days they are given cracked wheat, at seven days some good meat scrap is put before them, and at fourteen days cracked corn is added to the ration. I omit all wet mashes and early feeding, and believe that my plan has saved me thousands of chicks. While wet mashes, bread and milk, and other foods of like character, are good in many cases, there is too much risk to the average owner of chicks. Study the causes that produce illness in your flock and be ready to use your knowledge in the prevention of a large per cent of the common diseases of hens and chicks.

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## CANNIBALISM IN FOWLS AND CHICKS.

Many poultrymen have lost whole flocks of chicks and had combs and wattles of mature fowls spoiled by cannibal habits of the flock. The habit is particularly prevalent in young chicks which eat each others toes off, destroy parts of their wings and often nearly, if not quite, disembowel each other.

As a rule this habit is taken up in winter or early spring when the little fellows lack exercise and green food. Sometimes lack of sufficient meat in the ration forms the basis of the habit. It is almost impossible to prevent the practice once it gets a fair start. The best that can be done is to separate the chicks in small flocks, say twenty in each flock, and keep them busy hunting for fine grain in the litter. Also furnish plenty of green food and if the weather is warm, get them outdoors as much as possible. To satisfy the craving for blood, hang up a piece of fresh beef flank where they can pick at it during the day.

In the case of fowls which get the habit of picking at each other's combs and wattles, it is best to remove those which are being attacked until the raw places heal.

## INTESTINAL CATARRH AND TOXIC, GASTRO ENTERITIS.

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Two Diseases Which are Often Misunderstood Their Symptoms and the Proper Treatment.

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By O. H. Olson, M. D.

Gastro intestinal catarrh is a disease affecting the whole intestinal tract and is due to an inflammation of the lining membrane. It is a disease met with quite frequently among fowls. It has a strong resemblance to cholera and has often been mistaken for that disease, and the wrong remedy applied.

It may be caused by feeding rations that are too stimulating; the frequent use of pepper and ginger; overloading the stomach; eating partially decomposed food and food that has become sour and mouldy; exposure to drafts, rains, damp houses; overcrowding and sudden changes of temperature.

The symptoms are loss of appetite; great thirst and elevation of temperature; roughness of plumage; disinclination to move and distention of the crop, which empties itself very slowly owing to a partially paralyzed condition of its folds. There is at the beginning a slight diarrhoea, the droppings are soft and of a yellowish or greenish color and adhere to the feathers. The diarrhoea increases until it becomes very severe, and there may then be hemorrhages from the intestines.

The causes of the disease should be ascertained and removed. Place the bird in comfortable surroundings that are free from drafts and dampness. Give to the bird only the purest of water to drink and in small amounts at a

time. Give easily digested food, such as boiled rice, a little stale bread moistened with milk and a little oatmeal that is boiled. Give three or four grains of subnitrate of bismuth and one grain of dover powder and one grain of bicarbonate of soda three times a day. If diarrhoea is persistent after several days time give five drops of the deoderized tincture of opium twice daily, and continue giving the subnitrate of bismuth only.

#### Toxic Gastro Enteritis.

Toxic gastro enteritis is an acute inflammation of the mucous membrane of the bowels caused by poison or by the fowl eating irritating matter that acts as such. The symptoms are loss of appetite, convulsions, trembling of the muscles, vertigo drowsiness and diarrhoea. The bird seeks quiet and may be found in some unfrequented place with the head drawn close to the body and in a condition of coma.

The poison operating is usually not discovered until it is too late to treat successfully. If poison is known the proper antidote should be administered as quickly as possible. Make an infusion of flaxseed tea and give to the bird, also some strong coffee or brandy to act as a stimulant. For diarrhoea the treatment should be the same as for simple gastro enteritis.

## VENT GLEET.

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Symptoms and Treatment of One of the Most Disagreeable of Poultry Diseases.

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By Dr. N. W. Sanborn.

Vent gleet is a disagreeable, contagious disease of the mucous parts of the part of the bowel known as the vent. It may extend to the egg passage in the hep. The origin of this trouble is in doubt but as to its dangers there is no question that it is the beginning of trials unnumbered. Given a single case in a flock and the male is apt to pass it to other members of the pen. It is seldom that you meet with a single case. When the matter attracts your attention the whole flock is infected.

Vent gleet is more common in the smaller and more active breeds. Seldom do you find it in the quiet Brahma or sedate Cochin. Many breeders tell me they never had a case in their experience in keeping poultry. Other men have written me a tale of woe and asked for immediate advice by mail because their birds were going to the bad. I have never had a case in my twenty years breeding of Wyandottes.

### The Symptom.

Vent gleet seldom attracts attention until it reaches the second stage of the disease. If you have a few cases in the flock and are on the watch for new cases you will learn to know its beginnings. There is at first a simple redness of the end of the bowel, or it sometimes appears just inside the passage with a slight swelling of the outer membrane. There is redness, puffiness with dryness. This is the story of the first stage of the illness. In a day or two a slight discharge appears. This is watery, light straw color and

irritates any part it runs over. It causes swelling and redness of the skin if it oozes out on the surface of the abdomen of the hen. The exudation of the parts collects in scales, crusts, or dirty masses, wherever it dries off, or mixes with foreign substances. It usually shows in a ring of crust around the vent and matted into the feathers that surround the parts.

Vent gleet is a catarrh of the vent that is intense in its action and containing germs that are hard to kill. No ordinary treatment avails in the curing of this ailment. You need to recognize the disease, know its progress, understand the use of remedies, and apply all three to the cure of the sick birds. More than this—you must prevent new cases from appearing in your pens.

#### The Treatment Advised.

The first cases you see will demand prompt and strong treatment. Permanganate of potash is probably our best single drug in this disease. Add five grains of the drug to one ounce water and bottle. Apply this full strength to the inflamed parts, using a swab of cloth or cotton on a small wooden stick. You need to be careful to avoid getting any of the discharge into your eyes or nose in the caring for the birds. If you can succeed in leaving a small bunch of the wet cotton just inside the vent, even for a few minutes, you will hurry the cure. Several applications a day may be necessary but give one thorough washing a day. Get every case of this disease out of the flock until cured.

Those in the flock that have been exposed should have an application of peroxide of hydrogen, full strength, to the parts, or a five per cent solution of sulpho-carbolate of zinc in water. It is often necessary to pluck some of the feathers around the vent in order to better use the remedies I have advised. Do not be in too great a rush to get the ill birds back into the flock. This trouble is hard to cure, and many cases will relapse at once when returned to the flock. In other words the disease may be lurking higher up in the

bowel or egg passage, needing only the extra excitement to start all over again.

Wash your hands as soon as through treating these birds, before attending to anything else, if you would avoid trouble. Burn all swabs and applicators you may use in the treatment.

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## LEG WEAKNESS.

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### Why Fowls Sometimes Wholly or Partly Lose the Use of Their Limbs.

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Many ask what to do for fowls that are troubled with weakness of the legs. To answer such a question it would be necessary to know the cause of the weakness. It may be caused by the fowl being in an overfat condition, causing an unhealthy state of the system, resulting in weakness of the legs. Fowls confined in limited quarters during the winter season, with but little exercise and an owner too generous in his feeding, very often show this trouble, and the remedy is light feed and all the exercise possible.

An overfat fowl is of little practical use, the eggs of hens in such a condition not hatching well, or if they do, the chicks are deficient in vigor and health. Male birds that are overfat do not fertilize the eggs, or if fertilized such eggs do not produce strong chicks. Leg weakness in the majority of cases will be found to be caused by the birds being loaded down with fat, in which condition they cannot be in good health.

Leg weakness in females is sometimes caused by the attentions of too heavy a male bird, and in such cases can only be remedied by removing the female from where she can receive attention from such a male. In cases where the weakness is of a rheumatic nature, the bird should be placed in dry comfortable quarters and fed good nutritious food,

with a little tincture of iron in the drinking water. The legs should be bathed with some well known remedy for lameness and rheumatism. We would not care to breed from any fowl that showed a tendency to rheumatism, or in fact from any bird that was not in possession of strong legs, set well apart and free from any knock-kneed tendency. A bird set upon strong, well-shaped legs is generally of a vigorous constitution and we must look well to such points in selecting our breeders.

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## DISEASES OF THE SHANKS.

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### How to Prevent the Unsightly Troubles that Affect the Scales.

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By Dr. N. W. Sanborn.

Diseases of the shanks are in plain sight. They attract attention at first notice. The hen in the breeding yard, the cock in the show pen, with scaly legs does not please the visitor. Poultrymen cannot afford to allow their birds to become infected with any serious disease of the legs. There are several diseased conditions of the shanks but of them all we select "scaly legs" as the one most important to our discussion.

#### Cause of the Trouble.

The rough, loose, dirty appearance of the shank is caused by the actions of a minute insect. This mite lives in the space between the scales that cover the shank, working its way about, irritating the parts, raising the scales, and making ugly the appearance of the parts. When once seen, scaly legs should never be neglected. Except in extreme cases this condition of the legs is not a serious matter to the life of the hen. I have no doubt it does affect the comfort of the bird, I know it makes a decided difference in the looks of the fowl in the show, and it detracts from the looks of the dressed carcass in the meat market.

The scale insect passes from bird to bird. The usual way is the brooding hen passing it to the chicks that nestle under her. Another way is crowding close on the roost in the winter house. A hen infested with the scale mite will pass it to her whole brood.

The disease is all too common. It is the rule in some breeders' yards to see most of the birds with it. I have seen at the Boston and New York shows, winning birds that had rough shanks because of the scale. A shank that has been once affected can never be made smooth as it should be. The insects may be destroyed, the surface of the leg made smooth, but there will remain a deformity that is noticeable.

#### **How to Prevent it.**

What can be done to prevent? Get rid of infected stock! Cure every valuable breeder you retain! Add no new bird until it has been treated for scale! Good birds that you need keep for breeders can be well treated for the disease and then used for producing eggs only. Incubate and brood the chicks with clean shanked hens or use incubators and brooders. Allow the chicks no access to infected stock.

There are several applications that will kill the mite as it burrows in the scales of the shank. Lard and sulphur well rubbed into the parts will destroy the insect. Kerosene and lard is a common remedy for this disease. Even pure kerosene oil has been applied with decidedly good results. There is anger in using the pure oil as it is likely to irritate and swell the parts that it soaks into. When applied to the skin and feathers the feathers usually drop off.

#### **A Simple Remedy.**

I like a mixture made as follows: To a cup of lard add one heaping tablespoonful fine ground sulphur, and stir well. When thoroughly incorporated add one tablespoonful kerosene oil and work until you have an ointment of uniform consistency. Rub this into all parts of the leg and toes that are covered with scales. Be sure you get up the shank to

the line of feathers of the leg. A single application seldom reaches every insect, so it needs to be repeated every few days, until every mite is dead. The roosts should be wet with some insect killer, such as napereol or sulpho-naphthol, to destroy stray insects.

Once free of the disease, it is clear sailing to keep from more of it. Neglect your fowls in this matter and you will soon have an ugly looking flock. Clear up the trouble and prevent new cases and you will make easy work of maintaining a flock of birds that are clean and attractive.

#### Bumble Foot.

"Bumble Foot," or abscess of the foot, as it is correctly called, is caused usually by injury to the member caused by jumping from high roosts or on some hard substance. Pus usually forms and the center of the swollen part usually becomes a hardened and horny substance. The horny part should be removed, the puss extracted and the wound thoroughly washed out with peroxide of hydrogen. After this it may be treated with an application of one part iodoform and twenty parts vaseline, held in place by soft gauze, protected by bandages. The specimen should be kept in a very clean, dry coop and not allowed to exercise much until the wound heals. The wound should be dressed and a fresh supply of iodoform and vaseline applied daily.

## BROKEN BONES AND INJURIES.

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How to Set and Care for Broken Wings and Legs and Head Cuts and Tears.

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By Dr. N. W. Sanborn.

There come times when a little knowledge of surgery, is helpful to the owner of poultry. The "fifty cent hen" may not be worth the time and trouble to doctor but finds her place in the pot preparing to appear on the table. But the valuable show bird, or a fine breeder, may be made usable again by the help of a splint for a broken bone, or a few stitches in the torn comb or wattles.

### Broken Bones.

Grown poultry seldom have broken bones outside the wing and legs. Where you meet one case of broken wing you see ten of broken legs. In case of broken wing bones you can do little except to bandage the wing to the body for a week, or two, and be willing to take a little deformity in the healing. In case of breaks in the leg above the shank much depends on the size and fatness of the leg. If the bird is moderately thin you can apply small splints of pine to the parts, covering the leg with a thin bandage, then a half dozen splints held in place by a few turns of the inch bandage. Get the broken bone in proper relation and by means of the home made splints and bandage hold the leg in shape till the break becomes strong enough to bear the weight of the bird. I have seen most broken bones in fowl in the shank. Such a break in a valuable bird can be treated with pleasure and profit. Wrap a layer of cotton batting around the shank, place a dozen toothpicks so as to cover the break, and a few turns of the bandage holds them in proper place to control motion of the two fragments of bone. Notice that the leg is not twisted, after setting, as it would bother the hen if her

toes were turned round and she scratched the wrong way when she got the use of her game leg.

Little chicks occasionally get a broken shank, from being caught in the wire fence or being stepped on, and these breaks heal with rapidity if attended early. It may be that winding the shank with surgeons' plaster will give sufficient support, or the slender splints of pine may be required to cure. You will be surprised, and pleased, to see the amount of travel these birds with splints will take in the course of a day.

#### Cuts and Tears.

Accidents will happen to our poultry and it is often the best in the flock that are afflicted. There are dangers in the barb of the wire fence, in the broken bottle behind the barn, the tools of the place, and also in the fighting blood of some of our show males. Seldom a season passes without a badly torn comb or wattle, or a deep cut in the flesh of one of my breeders. Taken early you can repair damages so as to have left a fairly presentable bird.

Cuts and tears need to be cleaned with a milky mixture of warm water and sulpho-naphthol or one of the preparations of the same sort. Clean out dirt and kill germs of life. With white, fine silk and fine needle, sew the parts together. Make each stitch by itself. Do not try to run the silk from stitch to stitch, but make one complete stitch—cut your silk—and make another. When the parts are brought together by the needle and silk, and blood has stopped running, cover the line of the cut with "new skin" or collodion. You will find your first attempt to use the needle and silk somewhat a queer proceeding, as it is no easy thing to tie the knot that will hold and yet not be too tight. Work with clean hands; new silk and a needle that has been just held in the flame of a match. Common cotton thread will answer but is not so harmless to the tissues you sew.

If along the line of the cut pus begins to form bathe with full strength hydrogen peroxide. This will foam, will

penetrate the cut, and destroy much of the germ life in the wound. Whenever the line of the cut seems to be healed you should cut with a fine pointed scissors each stitch and pull out of the flesh. A little knowledge of these matters is needed by owners of valuable fowl.

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## HEART TROUBLE.

Occasionally a fowl, usually one more than a year old, appears to have sudden attacks of weakness. Perhaps the bird will be crowing or cackling vigorously when suddenly it will gasp for breath and will stand motionless, apparently not able to move, and then it will seem to recover its vigor. Sometimes a fowl that is apparently healthy will die suddenly after being frightened, perhaps when caught by the owner. Sometimes a fowl drops dead from the roost or in front of the feed pan. In such cases, heart trouble is almost always the cause of death. Nothing can be done to prevent such loss except by keeping the general health of the flock as near perfect as possible for heart trouble is usually caused by severe strain or by the ravages of some other disease.

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